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PRIVATE LESSONS

—ON—

DISEASES

—OF THE—

HORSE ^{AND} COW

—BY—

DR. RUTHERFORD, V. S.



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Introduction

In presenting to you this book, I have tried to make everything plain, leaving out all technical and Latin names as far as possible. Every prescription is written in English so any one can understand them. In my book you will find the diagnosis, symptoms, etc., on one page, and in the back you will find the prescriptions for each disease and defect. Under the diagnosis you will find treatment, then all you will have to do is to turn to prescription leaf and use medicine according to directions. I want you to always remember this point: It is always necessary for any man, to have success with stock in treating them, to have confidence in himself, and also in the treatment he is administering. The horse is a very intelligent animal and is always ready to obey man when he is well and able. The scientific method of treating horses has been greatly neglected. I hope those who purchase Private Lessons by F. E. Rutherford, D. V. S. on the Diseases of the Horse and Cow will read and study carefully the points given therein. If you will do this, you will be more able to treat your horse as he should be treated, and will become more attached to him.

Remember that the prescriptions found in this book are the most liable, as they are the best products of veterinary science.

Yours very truly,
F. E. RUTHERFORD, D. V. S.



F. E. Rutherford, D. V. S.

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By F. E. RUTHERFORD, D. V. S.

PRIVATE LESSONS

—ON—

✓✓ DISEASES ✓✓

—OF THE—

Horse and Cow

—By—

F. E. RUTHERFORD, D. V. S., Bonham, Texas.



In the foot are two bones and part of another one. The first is the ospedis (or foot bone.) The ospedis is nearly in shape of the foot; behind this bone is a small long bone which lies and braces a joint; this bone is called the osnavicular; it lies cross ways of the heel. The next bone above is the oscornea; the union of the ospedis and the oscornea is called the coffin joint, and this is the joint that the osnavicular braces. Now above the oscornea is the ossuffranges; the union of these two bones form the small pastern. At the top of the osuffranges is the ostibia (or shin bone;) the union of these two bones is called the fetlock joint. At the back of this joint are two small bones called sessamoids;

they are not held in place by the cartilage as most bones, but by the back tendons of the limb. At the top of the tibia, on each side is a small long bone called small metatarsel. These bones are about three-fourths as long as the tibia and in advanced age are adhered to it. The top of these two bones only reach up as high as the top of the tibia. Now on the top of these bones the carpus. The carpus (or knee) consist of seven separate bones.

Lesson 2.

THE FRONT KNEE—Many men suppose that the horse has a patella (or knee cap) but they are mistaken, there being no knee cap on front leg. There are seven bones in the knee. There are three bones which lie side by side on top of the tibia and small metatarsals; then on top of these three bones are three more, then behind, sitting edgewise, is another. So as to make it plain I will begin with the outside of the right front limb and name them one by one. The first bone that lies on outside and on top of the tibia and metatarsal is called the unciform; the next one is magnum, the next trapezoid. This completes the lower row. On top of the trapezoid is the scaphoids, next and on top of the magnum, is the lunare; and on top of the unciform is the cunciform; this completes the two rows. At the back we find the ospiciform; one end reaches back, the other rests against the cunciform and the lower end of the radius. So you see we find seventeen bones from the radius down.

Lesson 3.

The next bone above the carpus is the radius or arm bone. At the top of the radius is a small bone attached to the ulna. This bone is at the top and behind the radius. The next bone above the radius is the humerus; the union of the humerus and radius is termed the elbow joint. The next bone above the humerus is the scapular or shoulder blade. The union of the scapular and humer-

us forms the shoulder point. All bones united (at joints) by a tough gristle substance termed cartilage; likewise all joints are supplied with a lubricating oil called synovia fluid, commonly known as joint oil.

Lesson 4.

Remember that no two bones come in immediate contact with each other; they are held apart by the cartilage and the lubricating synovia. You will find a little hole in every bone—this is called the nutrient, where a nutritive vessel passes into the medullary canal. This last is generally called the marrow of the bone by non-professional men, but you must call it the medulla. The hole through the bone is called the spinal canal, and the marrow in the bone is called the spinal cord. The back bone as a whole, is termed the spine. Now when we review we find 20 bones in the right front limb and of course we find the same in the left bearing the same names, and in the same position only the carpus. To get their names we begin on the outside of the carpus as we did on the right limb.

Lesson 5.

The os pedis may be called the peddle bone, or third phalanx; the back wings or ends of the os pedis, the retrossel process. Right here a word. In some horses, especially those advanced in age, the retrossel process may become forked. The upper prong is called the basilar process. The sensitive substance which covers the os pedis is called the lamina; beneath the os pedis is the sensitive sole; at the upper part of the hoof is the cornet or cornet ring; below the small bone called the os navicular is the sensitive frog; at the heel is a brace usually termed the bars, or may be called the enflexes of the wall; the outer hoof is called the horny crest, or hard wall; we find the planter artery in the foot, with 15 branches running down from the main artery. The main vein of the foot is coronary venous plexus, which comes from the back part of the leg and reaches round on the outside, at the top of the hoof, to near its center

in front, then drops down in the foot with many branches.

How many bones in the leg from knee down?

How many bones in the knee or carpus?

What are their names?

How many bones from knee up?

Begin at bottom of limb and name bones and give their articulation?

Lesson 6.

Next we will study the right hind limb. The bones of the foot and limb up to the fetlock joint are the same bones by name as those of the front limb and the same location, but the next bone above, which reaches up to the hock joint, is termed the large metatarsal. The above is the os cuneiform magnum. On top of this bone is the scaphoid; behind these bones is the cuboid. Now on top of these bones is a large and longer bone, perhaps four or five inches in length, called the astragalus; the upper part of this bone forms the upper back part of the hock, and is termed the os calcis. Now name the bones from the foot up and give their articulation.

Lesson 7.

Above this is the tibia, which is a long bone which reaches up and forms part of the stifle joint, as it is termed. The next bone above is the femur, which is the largest bone in the horse. The union of these last two named bones forms what is called the stifle joint; in front of this joint is a small capped shaped bone called the patella. This bone acts as a brace to the stifle joint. The upper end of the femur has a forked appearance; the end of one prong is perfectly round, which fits in a perfect round cavity in the large bone of the hip called the ilium. This union of the ilium and femur is known as the hip joint. The ilium is not classed with the bones of the limb. Thus we find twenty bones in the front limb, and only seventeen in the hind limbs.

Lesson 8.

We will now examine the bones of the head. In the fetus there are seven flat bones, but by the time of puberty many of these unite. Of these seven flat bones of the cranium, five of them are single. The occipital, parietal, frontal, spheroid and ethmoid, one only, the temporal, is double. These bones circumscribe a central cavity, the craniel, which communicates behind with the spinal canal, and lodges the portion of the principal of the nervous centers—the encephaelon. The occipital occupies the extremity of the head, which it supports from the interior of the spine. The parietal bone is a wide and thin bone very much arched to form the roof of the craniel cavity. It is bounded above by the occipital bone, below by the frontal. Will you name the bones of the front limb? Name bones of hind limb?

Lesson 9.

The frontal bone is a flat bone whose sides are bent in the middle at an acute angle, and are carried back, and a little inward to meet the wings of the superior bone. It assists in forming the craniel roof and part of the face. It is bordered above by the parietal, below by the nasal and the lachrymal bone, and on each side by temporal bones. Next is the ethmoid bone. The bone is deeply situated in the limit between the cranium and the face, is enclosed between the frontal, the spheroid, the vomer, the palate and the supermaxillary bone. The spheroid bone is situated behind the cranium, between the occipital, ethmoidal, palate, vomer pterygoid, frontal and parietal bones. The temporal bones enclose the craniel cavity literally, and articulate with the occipital, parietal, spheroidal and the zygomatic bones.

Lesson 10.

The bones of the face in the fetus are so numerous and hard to locate and as it is not much use in surgery I will only give their names. The face is composed of

two jaws, a bony apparatus that serves as a support to the passive organs of mastication, the teeth. The superior, or interior, jaw is traversed in its entire center length by the nasal cavities, and is formed by 19 bones, only one of which, the vomer, is a single bone. The pairs are the superior and interior maxillary, the palate, pterygoid, zygomatic, lachrymal, nasal and superior and inferior turbinated bones. Of these only four—the maxillaries—are intended for the implantion of the teeth. At the back end of the lower jaw it has a forked appearance. The upper fork is called the coroniod process; the lower one is the condyle and is called the sigmoid notch.

Lesson 11.

Now we will examine the vertebral column, or bones of the neck and back. The verterable column, or spine, is a solid and flexible stalk, situated in the middle and upper part of the trunk, of which it forms the essential portion. It projects the spinal cord and sustains the thorax as well as the principal organs of circulations, respiration and digestion. This piece is formed by somewhat considerable assemblage of short, single tuberos bones, to which has been given the name of vertebrae. These bones, through all constructions on a uniform type, yet do not offer the same conformation throughout the whole rachidean stalk. They are formed into five different groups. These groups are called vertebreas.

Lesson 12.

What is the vertebrae? The bones of the neck. How many bones is the neck composed of? Seven. The first bone behind the head is the atlas. The next is the dorsel, which has 18 bones, which the upper end of the ribs fasten to. These are called dorsel verterbrae. The third is the lumber region which only has six bones. And they correspond to the loins: In tne fourth vertebrae there are five bones in the fetus, but in the adult they become solid and form into one solid

bone. This bone is called the sacrum, and is called the sacral region. The fifth are the bones of the tail and is called the coccyxial region. There are no definite number of bones in the coccyxial vertebrae as some horses have more than others. Some have as low as 10 bones and some as high as 17, so you see there is no definite number. The cervical dorsal and lumbar vertebrae are called true vertebrae, while the other two are called false.

Lesson 13.

We will now study the thorax. The thorax represents a canoid cage elongated from front to rear, suspended under the vertebrae of the dorsal region, and contains the principal organs of respiration and circulation. It is composed of bony arches, named ribs, 36 in number, eighteen on each side, and a single piece called the sternum, which serves as a support for the front ribs. The sternum is an osteo-cartilagenous body, elongated from front to rear, flattened on either side and slightly curved. There is a space between each rib. This space is called intercostal space, also the muscles which attach them together are called intercostal cartilage. It is proper to say that in some horses that there are 19 ribs to the side, for we very often find them. Therefore, if we find 19 ribs we find 19 dorsal vertebrae.

Lesson 14.

We will study the digestive organs. First the preparatory organs which includes the mouth, the tongue, salivary glands, pharynx, esophagus, stomach, duodenum, liver, spleen, pancreas and intestines. A description of the first four I do not deem it of any great importance as you will understand them, or sufficiently at least. We will first describe the pharynx. The pharynx is the upper part of the esophagus (throat) and is the organ of speech in man or beast. The esophagus extends from the pharynx down, and enters the stomach, in which is called the cardiac portion of the stom-

ach. Next is the stomach which is the membranous sack comprised between the esophagus and intestines, as has been stated, and which is composed the essential phenomena of digestion.

Lesson 15.

THE STOMACH—The stomach technically speaking, is called the ventriculus. It is situated in the diaphragmic regions of the abdomen, where it affects a direction transverse to the medium plane of the body. It's average capacity in a medium sized horse is from three to three and a half gallons. But it varies greatly according to the size of the animal and the nature of its food. The stomach is larger in the common horse than in the fine bred; also in the ass and mule. Its weight when empty is from three to four pounds. The stomach has three coats—an internal or serous; a middle or muscular, and an internal or mucous. The front half of the stomach looks like the mucous membrane had been eaten off, as it is nearly smooth, while pyloric or back portion is rough and full of little knots or bumps. The opening where the food passes out of the stomach is called the pyloric ring of the stomach.

Lesson 16.

Will describe to you some of the most prominent muscles, arteries and veins of the organs mentioned in last lesson. The muscles of the lips are the labial or orbicular glands. The lips are supplied with blood by the palato—labial and the superior and inferior coronary artery. It is returned to the heart by the satellite veins of the last two vessels. The nerves are of two kinds—the moter which are given off from the facial nerve and are distributed in the muscular tissues of the lips to cause its contraction and the sensitive nerve which are furnished by the maxillary branches of the fifth enchapalic pair. The blood vessels of the cheek are the bucal external maxillary and coronary arteries. The tongue is supplied by blood of two arteries, lingual glossopharyngeal and the hypoglossal.

Lesson 17.

Next is the salivary glands. The salivary glands are secretory organs annexed to the buccal cavity into which they pour saliva, a fluid that softens the food after its arrival in the abdominal portion of the digestive canal. The Pharynx. The blood sent to the pharynx comes from the pharyngeal and thyroïdial arteries. The nerves are supplied by the glosso-pharyngeal, pneumogastric and great sympathetic. The esophagus is supplied by the division thrown off by the carotid artery and bronchial and the aëropharyngeal arteries. The nerves of the esophagus are derived from the pneumogastric nerves. Where does the blood come from that is sent to the pharynx? The esophagus is supplied by blood from what division?

Lesson 18.

We will now study the vessels of the stomach. The stomach receives its blood from the two branches of the gastric arteries and splenic and its terminal branch—the left epiploic artery and by the biloric and epiloric arteries. The principal arterial ramification extend between the mucous and muscular layers. The nerves of the stomach are derived from the pneumogastric and solar plexus. In the stomach are begun those transformations by which alimentary matters are rendered capable of being assimilated. There the food comes in contact with the gastric fluid by whose elements, and particularly the albumoid substance, after undergoing some changes. Where did you say the stomach received its blood from? Will you please name what parts of the horse you have studied?

Lesson 19.

Next we will view the alimentary canal, which is a continuation from the stomach through the abdominal cavity to the posterior opening of the digestive apparatus. The first after the stomach is the duodenum, or second stomach; then comes the small intestines, which is

in an ordinary sized horse, about 72 feet in length, and we may say that it commences at the right culdesac of the stomach from which it is separated by the pyloric construction. At its origin it presents a dilation, which in form simulates a small stomach, whose curvatures are the inverse of those of the proper stomach, placed at the posterior face of the liver. This expansion, or head, of the small intestines, begins at the narrow portion, which at first is directed forward, then bends suddenly backward, thus forming a loop, investing a base of the ceacum on the left side; then it is carried to the left, crossing transversely the sub-lumber regions behind the great mesenteric artery. Here it is joined to the floating colon. It then reaches the left flank, where it is enlarged and forms numerous folds. It then goes to the right and opens into the concavity of the ceacum, and a little to the inside where the large colon has its commencement. This terminal portion is named the ilium, which means to twist. The part found in the left flank is called the jejunum, which means empty. From the pyloric to the great mesenteric artery is the duodenum.

Lesson 20.

THE SMALL INTESTINES. The small intestines receive their blood from the great mesenteric artery. The one that goes to the duodenum comes from the coeliac trunk. The large intestines which communicates by a large reservoir, in the form of a culdesac is called ceacum. It is continued by the colon, which goes to the rectum. It is separated from the small intestines by the ileac-cecal valve. The ceacum is a large sack, occupying the right hypochondriac, where it takes a direction downward and backward. Its length ordinarily is between three and four feet and will hold seven and one-half gallons of fluid. The ceacum serves as a reservoir to the enormous amount of fluid injected. The greater part of this food passes through the stomach and small intestines, escapes the absorbent action of the villi and accumulates in the ceacum, where it may

be said to wash alemantry with which it comes in contact, thus dissolving the soluble and assimilable matters, this mass may yet contain, and favoring their entrance into circulation through the absorbent surface formed by the mucous membrane of the large intestine.

Lesson 21.

THE COLON.—The colon is divided into two parts, which differ from each other in volume, and in disposition they affect in the abdomen cavity. The first is the large or the double colon. The large colon is from 10 to 15 feet in length, and holds eighteen gallons. The arteries of the large colon are from the great mesenteric. (They are the colonic arteries.) The satellite veins enters the colon near the rectum or rump. The small colon enters or precedes the large colon, and its termination is in the pelvic cavity. It is about 10 feet in length and is about twice as large as the small intestines. When the soluble matter passes out of the small intestines the name changes and is called excrement. The excrement is compressed by the peristaltic muscles and are bound into little round masses, find their way to the rectum and pass out. The rectum extends in a straight line from the pelvic cavity to the anus. The rectum is nothing more nor less than the continuation of the small colon, yet it has no ridges and its walls are thicker and stronger.

Lesson 22.

ORGAN OF THE ABDOMEN—Next we will study the organs of the abdominal portions of the digestive canal. These organs are three in number—two glands, the liver and pancreas, which pours into the intestines two particular fluids, the bile and pancreatic juice. The spleen, which is remarkable for its numerous vascular connections, is next. The spleen deserves to be studied. We will first study the liver, which is situated in the abdominal cavity, to the right of the diaphragm, and in an oblique direction downward and to the left.

The weight of the liver of a medium sized horse is about 11 lbs. The liver is fixed to the posterior of the diaphragm by four particular bands. The liver has three lobes, a left, middle and right lobe. The left is always the largest, right next and the middle the smallest. The blood vessels of the liver are the hepatic artery, portal veins and supreh epatic veins. The liver secretes the bile at the expense of the blood of the portal vein. The bile is an excrementation secretion. The bile assists in the purification of the blood, in digestion and colorfication. The liver furnishes two very different products—bile and sugar. The secretion of bile in the liver is most active during digestion, yet it goes on in a continuous manner.

Lesson 23.

THE PANCREAS.—This organ has the greatest resemblance to the salivary glands and its physical properties, and for this reason it has been named the abdominal salivary glands. It is situated in the sub-lun-er regions across the aortal artery and posterior vena-cave in front of the kidneys and behind the liver and stomach. Its weight is about 17 ounces. The spleen differs from glands, not only as an excretory duct, but in all other ways. The spleen is situated in the diaphragmic region, close to the left hypochondriac, and appears as if suspended in the sub-lumber regions, as well as the curvature of the stomach. The average weight of the spleen is about thirty ounces, but sometimes larger in size. The arteries emanate from the splenic artery, and plunge into the spleen at different elevations. The various branches of the spleen opens into the splenic vein. The functions of the spleen are not of any great importance. Animals where the spleen has been removed, have continued to live and been in good health, and no inconvenience is manifested. From the best authority it is concluded that the spleen is a diverticulum for the portal vein. What is the weight of the pancreas? Of the spleen?

Lesson 24.

Now we will review respiration and its organ. As the nostrils are so well understood I do not think it necessary to describe them. After the air is enhaled into the nostrils it then passes into the larynx, which is the upper part of the treachea or windpipe, after which it passes down the phayrnx and enters the bronchial tubes. These tubes resemble a tree with two prongs, with many branches from each prong. These branches enter the right and left lung. At that extremity we find the air cells. The lungs are spongy and soft. It is divided into parts, the left and right, the left being smaller than right. The blood runs from all parts of the body by the veins. It arrives at the right sack of the heart, whence it is propelled into the lungs, there to be regenerated by the immediate contact with the air. It is the pulmonary artery that conveys this fluid into the parenchima of the organ and by the pulmonary veins it is carried back to the heart. The nervous branches supplied to the tissue of the lung come from the same sources as those of the bronchial tubes. The nerves of the heart furnished by the cardiac plexus come from the pneumogastric and great sympathetic. The lungs are the seat of the absorption of oxygen and the expulsion of carbonic acid nutritive fluid.

Lesson 25.

THE HEART. The heart is the center of circulatory apparatus. It is a hollow muscle, whose cavity is divided into a thick ventricle septum into two perfectly independent pouches. One is traced on the track of the dark blood, and propels it into the lungs; the other is situated on the course of the red blood and distributes it to all parts of the body. The heart is enclosed in a fibrous sack, named pericardium. It is distant from the fixth and sixth vertebrae about five inches. In a medium sized horse the heart is about ten inches long, and holds from one to one and a half pints of blood. Its average weight while empty is about six and one-

half pounds. The heart is larger in low bred horses than in high bred. The blood is carried to the muscular tissues of the heart by two large vessels, the coronary arteries. The blood is carried from the walls of the heart by a single but important vein, which empties into the right auricle of the heart. The nerves comes from the pneumogastric and great sympathetic, as before stated.

Lesson 26.

ACTION OF THE HEART—The function of the heart is to maintain the circulation of the blood and contraction of the two pouches. The right pouch sends the fluid to the lungs; then it returns to the left pouch; from this it is thrown to all parts of the body and is brought back again to the right side of the heart. These contractions take place simultaneously in the two cardiac compartments. In taking the heart at a moment when it is in a state of repose, that is, in the intervals between the two contractions, we find that the two pouches is being rapidly filled with blood brought to it through the venous openings. When sufficiently replete, the auricles slightly contract and push a portion of the fluid they contain into the ventricles, these contracting immediately after to propel the blood into the arteries. The passage of the blood of the arteries, or into the arteries, is necessary of the contraction of the ventricles, as at the moment of the contractions the valves are raised, and so prevent the reflux of the blood into the auricles. When the heart returns to a state of repose these valves turn down, preventing the return of blood into the ventricle cavities, while the mitral and tricuspid valves subside against the walls of these cavities, and thus again allow the passage of the blood through the aoriculo-ventricular openings. The word systol means the contraction of the heart; the word diastole means the repose of the heart between two contractions.

Lesson 27.

THE KIDNEYS—The kidneys are two glandular

organs, situated in the abdominal cavity, to the right and left of the sub-lumber regions, lying against the great proas muscles. and stay in that position. First by an envelope of celular tissues; second by the pertenum which passes beneath them; third, by the pressure of the digestive organs contained in the abdominal cavity. Their situations are not exactly alike, for the right is forward between the last two ribs, while the left scarcely reaches to the last two ribs. The right kidney is always larger than the left. The right will weigh about 27 ounces while the left will weigh only 25. The kidneys have a special artery and vein remarkable for their purpose. The kidneys are excretory organs. After the urine is sent to the kidneys they merely solve it and prepare it for excretion. Next are the ureters. They are a membranous canal, having the diameter of a common size goose quill, which conveys the urine from the kidneys to the bladder. There is something remarkable about the ureter, in the way it enters the bladder. It does not pour the urine directly into the bladder. The ureter first pierces the muscular wall of the bladder, between the mucous membranes it passes for about an inch, and then opens on the surface of the latter. I don't think it necessary to say anything about the bladder. Its average weight when empty is about sixteen ounces.

Lesson 28.

GENITAL ORGANS OF THE MALE—As so little is known of these organs as those of the female I will give a dense description of them. The generative apparatus. Individuals in the organic kingdoms possess the faculty of reproductions, and the species to which they belong is a grand and beautiful law of vital force, which holds under its case the preservation of the organized world. In generation it demands the intercourse of two individuals, a male and a female. The female furnishes a germ (the ovum), and the male a fluid (the semen) which vivifies the ovum and renders it capable of developing or development. We therefore

have to study the generative or genital organs of the male and those of the female. The semen is elaborated in the structure of two testicles, called lobular glands. Each is divided with a secretory duct, doubles a great many times on its cell at its commencement, epididymis, and destitute sinousities for the remainder of its extent, which is named the different canal (vans deferens.) This canal carries the fecondating fluid into the vesiculae seminale reservoir with contractive walls, where it accumulates, and whence it is expelled during copulation, by passing through the ejaculatory canals or ducts, and the urethral canal. The penis when in act of copulation is introduced into the vagina, to the bottom of which it carries the spermatic fluid. The testicles (or two testis) are two glands, suspended on each side of the penis, between the thighs, where each occupies a particular serious pouch, the vaginal sheath (tunica vaginalis.)

Lesson 29.

GENERATIVE ORGANS CONTINUED—The tunica vaginalis, in the domesticated animals is the abdominal cavity, the serious membrane of which (the peritoneum) becomes a hernia in the inguinal canal, passing through the upper internal inguinal ring, and prolonged below the inferior (external) ring, so as to form a serious sack which is enveloped by membranous walls. We have to study in the vaginal sheath. First, its interior; second, the enveloping membranes, which forms the external walls, and to which we give the common name of scrotum. There are many more ligaments and membranes, but as they are purely techinal and hard to locate, I will omit them. Each testicle is oval-shaped, flattened on both sides, is lodged in the culdesac at the tunica vaginalis, and suspended at the extremity of the spermatic cord. The testicles secrete the spermatic or seminal fluid. Pure semen, such as is derived from these glands, is a white, visid, odorless and alkaline fluid. It contains a small quantity of liquid matter, in which is innumer-

able mass of spermatozoid. After the semen has passed through the genital canal, it is made much more aqueous, by the addition of the fluids secreted by the walls of the excretory ducts, or by the glands annexed to them. The spermatozoid are small elongated bodies. They have a flattened or lancet shaped head, and a tail, terminating in a point. Their form is slightly modified while going through the excretory ducts. Their movements persist for several days in the genital organs in the female after copulation. They are suddenly arrested by water, acids, on the contrary they are animated by alkaline fluids. The movements cease when the spermatozoid are exposed to a temperature of 120 degrees Fahrenheit.

Lesson 30.

1. How many bones in front limb? 2. What is the name of the bone of the foot? 3. How many bones in the knee? 4. Name them will you? 5. What is the first bone above the oscernea? 6. What first above oscorne? 7. What bones lie behind the union of the ossafranges and tibia? 8. What are those small bones that run three-fourths down the tibia? 9. Do all bones come in immediate contact with each other? 10. What holds them apart? 11. What is the first bone above the radius? 12. What is the bone above the humerus called? 13. What joint does the humerus and the scapular form? 14. What little bone is that which sticks out (or protrudes out) at the top of the radius? 15. Is the ulna adhered to the radius during colt hood? 16. What are all joints supplied with to keep up the wear and tear? 17. A hole in the side of the bone is called what? 18. What is the hollow in the back bone called? 19. What is the marrow in the back bone called? 20. The back bone as a whole is called what? 21. How many bones in the left fore leg? 22. How would we get the proper names and location in the opposite knee? 23. What other name has the os pedis? 24. What are the back wings of the os pedis called? 25. What shape does the

resotarsal get in the advanced age? 26. What is the upper prong called? 27. What is the sensitive substance that covers the os pedis called? 28. What is below the sensitive sole? 29. How many frogs to the foot? 30. What are they called? 31. Where is the non-sensitive frog? 32. For what purpose does the frogs act?

Lesson 31.

33. What is the upper part of the foot called? 34. What are the enflexus of the wall commonly called? 35. What artery do we find in the foot? 36. About how many branches does it have? 37. What is the principle vein of the foot? 38. What is the difference between the bones of the hind foot up to the fetlock joint and those of the fore feet? 39. What is the name of the bone that reaches from the fetlock joint to the hock? 40. How many bones in the hock? 41. What are their names? 42. What is the long bone that protrudes out behind the hock and a little above called? 43. The upper part of this bone is called what? 44. What bone above the hock? 45. Next bone above is called what? 46. What joint do these bones form at their union? 47. In front of this joint is a small bone called what? 48. What is the next bone above? 49. What shape is the upper end of the femur in? 50. What bone does the round end fit in? 51. What joint is this called? 52. Is the sacrum classed with the bones of the limbs? 53. How many bones in the hind limb? 54. How many bones in the head of a colt? 55. How many are single of the seven? 56. What part of the head does the occipital occupy? 57. What shape is the parietal bone in? 58. What bone is above the parietal? 59. What bone below? 60. What bones are on either side of the last named? 61. How many bones in the neck? 62. What are they called? 63. How many vertebrae are there? 64. Name them?

Lesson 32.

65. How many bones in the dorsal vertebrae? 66. What do they serve as a support to? 67. How many bones in the lumbar vertebrae? 68. How many in the fourth or sacrum region and is there a change takes place? 69. How many bones in the tail or coccyxial? 70. How many ribs? 71. What is the sternum? 72. What does it serve as a support for? 73. What shape is the sternum? 74. What are the spaces between the ribs called? 75. What are the names of the muscles that hold them together? 76. What does the preparatory organs include? 77. What is the pharynx? 78. From the pharynx where does the esophagus extend? 79. What is the stomach called? 80. Where is it situated? 81. How much does it hold in a medium sized horse? 82. Which has the largest stomach, well bred horses or scrub horses? 83. When empty how much will it weigh? 84. How many coats has the stomach? 85. Name them. 86. What is the opening where the food passes out called? 87. What are the glands of the lips called? 88. What artery furnishes the blood? 89. What vein carries the blood to the heart? 90. What arteries supply the cheeks? 91. What arteries supply the tongue? 92. What are the nerves of the tongue? 93. Where does the pharynx get its blood? 94. What are the nerves? 95. Where does the esophagus get its blood? 96. What nerve? 97. Where does the stomach receive its blood from? 98. What are the nerves of the stomach? 99. Where does transformation begin? 100. What fluid does the food come in contact with in the stomach?

Lesson 33.

101. What is the alimentary canal? 102. What is first after the stomach? 103. What is next after the duodenum? 104. How long are they? 105. Where do they begin? 106. Where does it cross transversely? 107. What then does it join to? 108. what is the terminal portion called? 109. Illium means what? 110.

where do the small intestines receive their blood? 111. what is the ceacum? 112. what separates the ceacum from the small intestines? 113. what is the length of the ceacum? 114. what will it hold? 115. How long is the large colon? 116. How much will it hold? 117. What is the small colon called that succeeds the large? 118. About how long is it? 119. How much does it hold? 120. Where does the rectum extend to? 121. What is the rectum? 122. Is its wall thicker than the colon or not? 123. Where is the liver situated? 124. Is it on the right or left? 125. What is its weight? 126. How many lobes has the liver? 127. Name them. 128. Which lobe is the largest? 129. Which is the smallest? 130. Where does the liver receive its blood? 131. What veins? 132. What is the liver? 133. What vein does it secrete the bile from? 134. What does the bile assist in? 135. How many products does the blood furnish? 136. What are they? 137. When is the bile most active? 138. What does the pancreas resemble? 139. Where is it situated? 140. Is it behind the liver or in front? 141. How much will it weigh? 142. Where is the spleen situated? 143. what is its weight? 144. Where does it get its blood?

Lesson 34.

145. Will an animal live without a spleen? 146. What is the larynx? 147. The air when enhaled passes where? 148. What does the bronchial tubes resemble? 149. What do these branches enter? 150. What do we find at their extremity? 151. Describe the lungs. 152. Which is the largest? 153. What does the blood return to the lungs for? 154. Which side of the heart does it return to before it is expelled into the lungs? 155. What vein carries the blood to the heart? 156. What artery carries it away? 157. What are the nerves of the heart? 158. What is the heart? 156. How many pouches is the heart divided in? 160. What are they called? 161. What is the sack called that encloses the heart? 162.

About how long is the heart? 163. How much blood will it hold? 164. About the average weight when empty? 165. Which has the largest heart well bred horses or scrubs? 166. What are the nerves of the heart? 167. Where does the right pouch of the heart send the blood? 168. Where does it go then? 169. Where then? 170. Where then does it go? 171. What takes place when the heart is in a state of repose? 172. The word systole means what? 173. What are the kidneys? 174. Where are they situated? 175. What great muscle do they lay against? 176. Are they situated exactly alike? 177. What is the difference? 178. Which kidney is the largest? 179. About how much will the right kidney weigh? 180. How much the left? 181. What is the ureter? 182. Does it pour the urine directly into the bladder?

Lesson 35.

183. How much does the bladder hold when empty? 184. What are the genitals organs? 185. What is the the germ called that the female furnishes? 186. What is the germ of the male? 187. Where is the semen elebrated? 188. What other name has the testicle? 189. Where are they located? 190. What are the shape of the testicles? 191. Where are they lodged? 192. Where are they suspended? 193. What color is pure semen? 194. What shape is the spermatozoid? 195. What are they arrested by? 196. At what temperature will they perish?

Lesson 36.

SHOEING—Proportion foot according to height Why? Because it puts the horse in a natural position on his feet. A horses foot should be cut according to his height.

Hands high	Heels inches	Toes inches.
15	1	3
15 1-2	1 3-16	3 1-2
16	1 7-16	4 5-16
16 1-2	1 10-16	4 14-16
17	1 12-16	5 4-16

Dress the foot from the bottom so that the shoe will fit the foot as a joint of the finest furniture. Why? Because when the shoe doesn't fit true the bearings are unequal, and it is an injury to the foot to stand or walk on it. The shoe must fit out to the full size of the foot. Why? When the shoe fits the horney crest it is where nature designated and will not lame your horse. Never rasp off the foot. Why? You see when you rasp off the hoof after setting the shoe back you destroy the hard part of the foot, and make it weak. Remember that the hoof is never too strong for the work it has to accomplish. Have no bearing behind the ospedis. Why? The heel of the horse acts just like the toe of a man. If your shoe or boot fits easy or loose, every time you step your toes expand. And when the weight is taken off the toes relax, which assists the flexor tendons to handle the foot with ease. But, put on a tight pair of shoes and you could not walk a mile but that you would go lame. So by shoeing so that the shoe will rest clear back as far as there is any hoof, or so that the bearings will be behind the back ends of the ospedis, you will cramp the heel as a tight shoe would cramp your toes, and the result will be easily seen; so in effort for the heel to expand, a hole will be worn out of the heel of the shoe. Be sure to look for this the first time you are at the shop. The shoe must be wider from the last nail hole back than it is crossways. Why? Remember the bearing is taken off the heel and the shoe must be wider to add strength. A carpenter takes a two by four scantling and sits it on its edge to make it stronger. Do not neglect this point if you wish the horse to travel with ease and without injury to the horse. The nails must fit the holes in the shoe tight. Why? First, if the holes are too large for the nails the shoe is only held on the foot by the points of the nails and the heads; then by the holes in the shoe being too large you draw the shoe too tight to the foot and it injures the foot by being in a cramp. So you see if the nails fit the holes the shoe is held on by the body of the

shoe and nails instead of the ends and points of the nails. Points of nails must come out on a line. Why? Where you are not particular as to where the nails come out one will pull in one direction and one in another, etc., so you have the foot in a perfect cramp. Besides at the next shoeing the old nail will be in the way where you wish to put the new one, especially the nail that comes out high upon the hoof. But if they come out on a line they will all draw in harmony with each other and you will not be bothered with the old nail holes for they will all be beneath the line where the new ones will come out, but most of the times be cut away where your horse is shod regular.

Lesson 37.

THE FOOT CONTINUED.—It is an object of importance to preserve this important part of the horse. There is too little notice taken of the foundation of the horse—the foot. There are many diseases brought on by neglect of the foot. Cutting the frog as most horseshoers do is wrong and I condemn it. First, the frog has many valuable offices to perform; one is that it is a spongy and an elastic substance without feeling; still it grows and sheds a coat two or three times a year, and acts as a cushion in case the foot comes down on a rock or hard substance. It is to prevent jars or injuries to the sensitive part of the foot. If healthy it prevents the foot and heel from contracting. Again it receives moisture from the earth and retains it until it is transferred to the foot. In this way the health is kept up; it prevents inflammation and fever in the foot, which often results in lameness, etc. Now let us examine the frog that is cut or pared off by so called horseshoers and blacksmiths. It has the same effect as cutting the sap of a green tree in the spring of the year; it destroys the pores and you kill it where you cut it off; also it is natural for the foot to receive moisture, if it is cut off you make a smooth surface, consequently it cannot receive and retain moisture to supply the foot as nature requires. A frog that has been dressed can be compared to a plank that has been dressed or planed

off smooth. Take two planks—one has been dressed and the other rough just like it left the mills, dip them both into water and see which will retain the moisture longest. So you see it is an injury to cut the frog as the same demonstration will apply to both. Again, if the substance becomes dead, then it becomes dry. So if the horse is driven over rough roads it is a continual jar to the foot and the sensitive part of the foot, and also the navicular becomes diseased. I condemn placing a hot shoe to a horse's foot. Many so called horseshoers do this to find the high places on the foot instead of fitting the shoe to the foot cold as it should be done. By burning any horny substance it is easier dressed right then but after it becomes cold it is ten times harder than it was before it was burned. Some say they cut the burn away, but they are badly mistaken, true they can cut that which they can see, but to cut the affected part away would be impossible unless you cut the foot off entirely. I will make a demonstration: Build a fire by a tree and burn out a hole, then you take an ax and cut out the burn; you cut out the part you see but can you cut the affected part away? No, indeed you can't, neither can you on the horse's foot, for it is much more porous than a tree. The hoof has life but it is insensative; your finger nail has life but no feeling. The foot is of a vegetable life, no nerve, no feeling. Another thing: If you burn the foot it will contract. Never attempt to spread the foot by force, it must have life and expanded again to its normal size.

Lesson 38.

THE EYE.—The seat of vision. What is meant by the retina of the eye? The net work that lies in the back part of the eye is called the retina. Light admitted through the pupil to the retina produces vision. The portion of the eye that in some horses is of a brown and some gray is the iris of the eye. In the center of the iris is a circular black spot which is the pupil. properly speaking, the window of the eye, through which sight is admitted. Why are some horses near-

sighted? Because the carnea of the eye is so permanent that the image of distant objects is formed before it reaches the retina, and therefore it is not instinctively seen. All the outside of the eyeball is called the cornea. There are horses that go blind once a month, commonly called moon eye. (periodical ophthalmia) is the proper name. They call it moon eye because it comes once a month. I am often asked the cause of this, it is very hard to explain, I might ask why a man would have a chill at the same hour each day or every other day and the question would be hard to answer. This disease is caused by the substance of secretions, called tears becoming inactive, prevents the tears from performing their office. The lachrymal glands are small, lobular glands and open from five to fifteen ducts upon the conjunctiver between the eye lid and its inner fold. The tears are spread over the eye by the reflex movement of the eye lids, called winking. The office of the tears is to preserve brilliancy of the eye; its retention is seen in the diamond appearance in the eye after death. There are mineral properties in this secretion; its composition is composed of water, a luminous matter, chloride of sodium, and mineral salts. And as soon as it can no longer flow over the eye when the eye becomes dimmed and he can hardly see in day time; the light of the day hurts his eyes, and it is true he can see better after night. Now remember that blind teeth as some people call them (wolf teeth) are said to cause blindness, is a mistake, they cause nothing of the kind and hurt the horse in no way.

Lesson 39.

INFLAMMATION OF THE BOWELS.—Inflammation of the bowels is so much like that of spasmodic colic, many men are deceived in the diagnosis of the disease and can't tell one from the other, also remember that there are many horses killed by the administration of wrong medicine (or slops called medicine) that would get well if they would let them alone and let nature take its course. Symptoms: the horse gets up and

down, wallows very little, gets up and appears to be better sweats in the flank, also in the chest. Of course the severe pain causes the rolling. There is no bloat or swelling with this disease. The only way to be sure of this disease is by the pulse. So you may better understand the effect that inflammation has, I will compare the pulse to the mercury in a thermometer. Suppose you build a mild fire in a room and place the thermometer in there and as the heat of the room increases the mercury of the thermometer rises higher, and if the fire begins to die out the mercury drops down. Inflammation of any kind has the same effect on the pulse. As the inflammation increases the pulse increase in number of beats per minute, for it affects the heart. The inflammation causes the heart to contract faster, and as it is the contraction of the heart that throws the blood through the arteries you see that the pulse act as mercury in a thermometer. So the horse with inflammation; the pulse begins to beat faster as the inflammation increases, but with colic, the pulse will be irregular.

CAUSE—Caused by food going into the stomach when the stomach is disordered and a fermentation takes place. We have this all seasons of the year but mostly in the summer, or in the spring I should have said; so you see the change of food has a whole lot to do with it. Your horse ought not to be taken off the grass and be given hard food, all he can eat, unless you wish to give him inflammation of the bowels. I will tell you in the next lesson about the pulse.

TREATMENT:

Aconite, fl, ext.	20 gtt.
Laudanum	4 drs.
Gum Arabic (pulv.)	1 oz.
Digitilas	6 gtt.
Warm water	6 oz.

Mix. Give every sixty minutes until fever abates or pulse runs lower.

Lesson 40.

Before beginning an explanation of any diseases I will now lay you a foundation by which you must be governed invariably. You must be governed by the pulse and temperature exclusively in treating internal diseases. The normal (or natural) condition of your horse's pulse is 36 beats per minute, that is when he is in a healthy condition. Never begin to give your horse medicine until his pulse begins to go up many times, the horse is like man, gets sick and doesn't need any medicine, haven't you been sick many a time and did not take any medicine? Why, certainly you have. What cured you? Nature cured you of course. Nature and disease work against each other; nature works to build up the system and disease works to tear down and bring about death. You must bear in mind that medicine alone never cured a brute or human, but only assists nature in effecting a cure. You must remember this which I have learned by observation, that there are a great many stock killed by some ignoramus who don't know what he is doing (by medicine or slops called medicine) that perhaps would get well if they were left alone and let nature take its course. Now the next point to consider is the quantity of medicine and the different stages of diseases, if in the first stage the medicine would not be as much as if he was in the last stage, for it would take more in the last stage than it would in the first. Never give strong medicine in the nose or nostrils, many horses have been killed by drenching them in the nose with strong medicine such as chloroform and ether, I have seen more than two dozen, since I have been in the practice, killed just that way.

The proper place to take the temperature is in the anus, you can use the small human thermometer or there is a veterinary one made, but I prefer the small. The proper place to find the pulse is under the jaw, just on the bulge on the lingual artery, and always feel with your fingers and not your thumb. You can also find the pulse in the

tail and the fore limb just above the hoof but not so distinct as under the jaw.

Lesson 41.

FLATULENT OR WIND COLIC—Cause: When the accred secretions of the stomach come in contact with the sabacous juices of the colon the accredness produced by the blood being impure the disease is produced, when these come in contact a gas is generated, hence the swelling is produced and swelling continues as long as there is any sabacous juices to be absorbed. This is the only disease that produces any swelling at all, and one of the most prevalent that we have. You can have it any season of the year, yet, more so in the summer. It is also the most dangerous and kills more stock in the south and southwest than any or all other diseases put together. Another important point is this, this is the only disease that has a limitation to the pulse; when the pulse reaches 85 the horse has only a few minutes to live unless he gets relief by tapping. Death is produced by the front end of the colon extending against the stomach and bowels and pushing against the diaphragm until it ruptures, and lets them in on the heart and lungs and he dies from suffocation, (smothers to death.)

DIAGNOSIS—or symptoms: He gets down rolls a little and gets up and down very often and begins to swell very much, by the time the pulse is beating at 40 to 50 beats per minute, the pulse beat hard and regular so you will readily diagnose this disease by the swelling and pulse.

TREATMENT—Give medicine prescribed every 25 minutes until swelling subsides and pulse goes down. If this does not relieve, you will have to resort to a trocar, an instrument made for the purpose. It is hollow and has a canular in it or you might call it a knife to cut its way. This instrument is inserted in the side of the animal on the left just below the last short rib, you first cut the hide with the knife and then gently push

the instrument in slanting a little forward and upward, after it is in as far as it will go you then pull out the canular letting the tube stay in to bring out the gas.

Lesson 42.

SPASMODIC COLIC:—Cause: The animal has been worked or exercised until very warm; then of course he becomes very thirsty and drinks very excessively. This causes sudden contraction of the stomach; also a cramping and aching of the bowels, which causes very intense pain. It is impossible to produce this disease other wise yet it may be produced at any season of the year.

DIAGNOSIS—Drops down very suddenly when taken, shows symptoms of great pain, rolls about very violently, gets up and down often in first stage, he exercises himself more with this disease than any other. Now go to the pulse and you can get the proper diagnosis. If you find a fluctuating pulse it is spasmodic colic regardless of external symptoms for no other disease produces any fluctuating in the pulse at all whatever, therefore it is impossible for you to mistake it. The fluctuating pulse is caused from the contraction of the walls of the heart which throws the blood out in a quiver.

TREATMENT—Give prescription which I prescribe every 25 minutes until pulse runs lower. Caution: I will here caution you and it refers to this and all other diseases alike; in no case give a dose of medicine as long as the pulse is at a stand still or coming down.

Lesson 43.

INFLAMMATION OF THE KIDNEYS—TREATMENT:—Give prescription every 60 minutes until pulse runs lower. Cause: The kidneys being the only excretory organs in a horse they have to perform their proper work (or function) otherwise this disease is caused; and the reason they are unable to perform their work is that the secretions are very impure, for

we might say it is caused from indigestion and a general derangement of the digestive organs. This is not a very prevalent disease, yet you may expect death to ensue if the case does not get proper attention. It is one of the most dangerous diseases we have and we can have it any season of the year.

DIAGNOSIS—The way you know this disease is he lays down but does not roll much; but when he does roll he has an inclination to stop on his back. The reason of this the momentary pressure of the bowels on the kidneys give him momentary relief; he feels better in that position than any other. In first stage when he gets up he will stretch out and make (water) or try to, small quantities pass and seems to be very painful to him. The kidneys being in close connection with the urinary organs produce this inclination to urinate. You go to the pulse and they beat perfectly regular, but run up according to inflammation (or fever). So the regular pulse, and the inclination to lay on his back and the stretching out when up, is the way you distinguish this disease from any other, no other disease has these symptoms. This is often taken for gravel by those who know nothing about stock.

Lesson 44.

LUNG FEVER OR PNEUMONIA—Cause: By driving hard and leaving your horse in the open air, or from having over heated from shipping etc., then cold settling on the lungs this disease is produced. You should always blanket your horse after a long drive should the weather be cold.

DIAGNOSIS—He breathes hard, has a shivery chill, stands on his feet all the time never lays down until he lays down to die, pulse hard and regular all the time from the first symptoms to the last, put your ear down against his breast or just behind fore leg and you will hear a harsh rattling sound just like wind blowing through dry leaves. As no other disease has these symptoms you cannot mistake it.

TREATMENT—Blanket your horse if cold weather, and keep in a close stall where the wind won't blow on him. Give no kind of forage while sick, your horse will not live over six or eight days with this disease. If he is bad you may shave off the hair opposite each lung and put on a good cantahardies blister. Give medicine every 60 minutes until fever abates or pulse comes down.

Lesson 45.

THUMPS—Caused by pores of the skin becoming closed so as to prevent the secretion called perspiration from coming through the skin; then by getting your horse over heated it produces what is called the thumps, and once this disease, if disease you prefer to call it, your horse is liable to have it every summer. There has been many theories to its location, one however I think to be most popular is a fluttering of the heart (or throbbing.) But this theory I can't believe, for I have never known or heard of the thumps killing a horse, and I have known of horses having the thumps for years and it never hurt them. Notwithstanding I don't think a horse is so valuable with the thumps as without them. My reason for not believing that the heart is implicated is first, that the throbbing or thumping does not take place near the heart, I have held my finger on the pulse of the horse that had the thumps and the thumping would take place twice to one beat of the heart; the thumping is in the flank no where about the heart. Second, that it would be impossible to disturb the heart without producing a heart disease and it would kill the animal. The most rational conclusion is that the peritoneum becomes loaded with fat and by getting the animal too hot, produces a spasmodic contraction in the organs called the peritonium. The peritonium is the membrane (as I have told you before) that envelopes the intestines.

Lesson 46.

SPASMODIC COLIC PRESCRIPTION:—

Chloroform.....	Dr. 1.
Sul. ether.....	Oz. 1-2.
Tr. Opii.....	Oz. 1-2.

Mix, give every twenty-five minutes in half pint of warm water until pulse runs lower. Chloroform was discovered by Mr. Guthrie, of Sackets Harbor, New York, 1831, chloroform is a heavy, clear colorless diffusive liquid, of ethereal odor a burning sweet taste, soluble in about 200 parts water of hydrogen, and three of chlorine. Medical properties and uses: Chloroform when applied locally, is very irritating and produces pain, which may be followed by some numbness. If the chloroform be prevented from evaporating it will blister. Taken internally it acts upon the general system as it is very quickly absorbed. It quiets the pain in spasm. The usual effects of a full dose of chloroform, administered by inhalation are the rapid production of relaxation of the muscles, slow breathing, upturning of the eyes, and total insensibility. Some times frothing at the mouth takes place, and more rarely twitching of the limbs. The insensibility is generally produced in from 1-2 to 5 minutes, and generally lasts from 7 to 10 minutes, but may be kept up for hours with perfect safety by cautiously renewing from time to time. Ether Sul. Ether is a liquid composed of 74 per cent of Ethyl Oxide and about 26 of alcohol containing a little water. Medical use as a stimulant, locally it is irritating.

Lesson 47.

OPIUM OR LAUDANUM—Tr. opii—The concrete milky exudation obtained in Asia Minor from the unripe capsule of *Papaver Somifurem*—or poppy plant by incision and evaporation. Preparations of opium. Opii Pulvis Powdered Opium. Dose 20 to 60 grains.

Extractum Opii—Extract of opium—Dose 1-3 less than powdered.

Pulvis Ipecacuanhea et opii—This is dovers powder 10 grs. of ipecac and opium, 8 grs. of sugar of milk. Dose 1 to 4 drs.

Tinctura Opii—Vinegar opium. Dose 1-2 to 2 or 3 ozs.

The two principles of opium is morphine and codine.

FLATULENT COLIC—Prescription:

Sal-Soda	oz. 1-2
Tr. Peppermint	dr. 2
Ac. Hydrocyanic Dil.....	oz. S. S.
Warm water.....	oz. 8

Mix, give at one dose every 25 minutes, until pulse runs lower.

Lesson 48.

CANIBIS INDICA—Canabis Indica is made from a plant that grows in the East Indies, made from the female plant called canabis, in India they call it the Ganga plant. Indian hemp is also a proper name for it. Dose F. E. Canabis Indicia (or fluid extracts) 10 drops to 4 drs. Physiological actions—A stimulant, increase mental and moter activity, stimulates the nerves etc., and depresses sensation. Intoxication or complete and heavy sleep are caused by it according to the size of the dose. **Sal. Soda**:—This plant (sal soda) grows on the banks of the seas, they grow abundantly in France, Scotland and Ireland. Dose:—One dr. to 1-2 oz., comes in large white lumps and is easily dissolved in aqua (water.) It stops the accumulation of gas in case of colic. **Tr. Peppermint**:—Tincture of peppermint is made from the plant (or from the leaves and stems) that grows in Europe and is called Menthe Piparita. The spices of mint is a native of Great Britain but has been conveyed to Europe and this country. Medical uses is to ally pain, relieve spasmodic pains of the stomach in case of colic etc.

Lesson 49.

AC. HYDROCYANIC—(or prussia acid.) Acidum Hydrocyanicum Dilutum, is a colorless, faintly acid liquid having an albumen like odor, physiological action: produces drowsiness depression, slows the circulation. In tatus and strychnine poisoning it is an excellent remedy.

FISTULA OR POLLEVIL:—Fistula is caused from a bruise from a kick or bite on the withers from a stallion, bumping his withers against a stable or from wollering and turning over on a rock, in fact any way to bruise the periosteum of the bone, this causing a swelling to take place, and then it forms full of little openings called tubes, this disease is called incurable by some but I have always been very successful in treating it, I have never failed to effect a cure.

TREATMENT FOR FISTULA OR POLLEVIL:—Take a razor or sharp instrument and shave off the hair over the enlarged part and then you are ready for an operation, which is the only way it can be cured. Take a large scappel or knife and cut with the muscel an opening about an inch deep and 5 or 6 inches long, then take a sponge and saturate it with monsells salution, of iron then run it through the wound this will stop the blood, then gage your knife and go another inch deep and use the monsell again and so on until you go to the bottom of the tumor, there you will find it hollow and full of little tubes, then change knives, take a crooked blade knife and split those little tubes open good, then saturate with medicine.

Lesson 50.

TREATMENT FOR FISTULA AFTER OPERATION:—Cotton seed oil 16 oz. carbolic acid 1 oz. mix and shake well before using, inject in bottom of cut once per day and pack the opening with oakum to keep the wound from closing up at out side first, want wound to heal from bottom.

ACIDUM CARBOLICUM OR CARBOLIC ACID—

Is the product of the distillation of coal tar; occurs either in crystal or crystalline massed, white or colorless when pure but when slightly impure it is either reddish or will become so by exposure; is soluble in fifteen parts of water, the purest being most soluble in alcohol, chloroform, ether, and the oils will dissolve it. Uses: Used as a caustic used to cause sloughing in fistula used as an antiseptic, it is used internally as gastric sedative in small doses for dogs. Cotton seed oil (*Oleum Gossypii Seminis*.) Made from cotton seed and purified. It is used as a nutrient and tonic; also used instead of olive oil. Also wash the wound out every three days with peroxide of hydrogen by squirting a little in the bottom with a small syringe.

HYDROGEN PEROXIDUM—Peroxide of hydrogen: It was discovered by Thenard in 1818—The commercial peroxide is colorless; without odor, it should always be kept in a cool dark place well corked. When it comes in contact with a wound it produces a frothy foam; as long as the foam comes back yellow there is pus; white there is no pus.

Lesson 51.

PRESCRIPTION WRITING—The word prescription is derived from the word *prea* (a Latin word meaning before.) *Curæ* means (cure) *Cito*—(quickly. *Tu* to (safely.) *Et* (and.) *Jucunde* (pleasantly,)

TABLE OF WEIGHT AND MEASURE.

20 grs. make one scruple—gr. stands for grains.
 3 scruples make one drachm.
 8 drachms make one ounce—oz. stands for ounces
 and dr. for drachms.
 12 ounces make one pound—lb. stands for pounds.
R. means receipt. *Mist* or *Mistura*, a mixture.
AA of each.
Pil or *pilla*—a pill or pills.
Bolus—a large pill.
Pulv. or *pulvis*—a powder. *Q. S.*—Sufficient quantity.

S. or Signa—write.

O. or octarius, one pint.

Cong. or congius—means gallon. Ft. or Fiat means to make.

Garg. means gargle.

Gtt. or guttea—means drops. M. or misce. means mix.

Lesson 52.

Div. means to divide. Inj, means to inject. In or in die means daily. T. I. D. or T. D. means three times daily. Q. D. means four times daily. Fl. means fluid. F. E. means fluid extract. A maximum dose is the smallest dose that will produce the physiological action. So remember if you are not sure of the dose put down a small one instead of a large one. The dose of any medicine is twice the dose per rectum as per the mouth. Dogs take about the same size dose as man. A teaspoonful represents about one dr. A dessert spoonfull about two dr. A table spoonfull about one-half ounce. A wine glass two oz. A coffee cup about 5 oz. Regulating the dose according to age. Over three years old full dose. From one and one-half years old up to 3, one-half doses. From 9 months to 18, one-fourth part. From 4 1-2 months old to 9, one-eighth part. From 1 to 4 1-2 months old, one-sixteenth part. Rec. for fistula carbolicum 1 oz. Oleum Cossypii Seminis O. I. Miscea. Sig. inject in wound T. I. D.

Lesson 53.

SUNSTROKE OR HEATSTROKE—Sunstroke or heatstroke is called heatstroke because a horse will have it and never be in the sun at all, so you see it is a mistake about the sun causing it altogether, don't you? It is caused by becoming overheated and too much work and getting too hot. It is also called Isolation, but this is when it is caused from the sun. Sunstroke is simply prostration from heat, usually in very hot weather, especially when there are thunder showers.

Pulvis Ipecacuanhea et opii—This is dovers powder 10 grs. of ipecac and opium, 8 grs. of sugar of milk. Dose 1 to 4 drs.

Tinctura Opii—Vinegar opium. Dose 1-2 to 2 or 3 ozs.

The two principles of opium is morphine and codine.

FLATULENT COLIC—Prescription:

Sal-Soda	oz. 1-2
Tr. Peppermint	dr. 2
Ac. Hydrocyanic Dil.....	oz. S. S.
Warm water.....	oz. 8

Mix, give at one dose every 25 minutes, until pulse runs lower.

Lesson 48.

CANIBIS INDICA—Canabis Indica is made from a plant that grows in the East Indies, made from the female plant called canabis, in India they call it the Ganga plant. Indian hemp is also a proper name for it. Dose F. E. Canabis Indicia (or fluid extracts) 10 drops to 4 drs. Physiological actions—A stimulant, increase mental and moter activity, stimulates the nerves etc., and depresses sensation. Intoxication or complete and heavy sleep are caused by it according to the size of the dose. Sal. Soda:—This plant (sal soda) grows on the banks of the seas, they grow abundantly in France, Scotland and Ireland. Dose:—One dr. to 1-2 oz., comes in large white lumps and is easily dissolved in aqua (water.) It stops the accumulation of gas in case of colic. Tr. Peppermint:—Tincture of peppermint is made from the plant (or from the leaves and stems) that grows in Europe and is called Menthe Piparita. The spices of mint is a native of Great Britain but has been conveyed to Europe and this country. Medical uses is to ally pain, relieve spasmodic pains of the stomach in case of colic etc.

Lesson 49.

AC. HYDROCYANIC—(or prussia acid.) Acidum Hydrocyanicum Dilutum, is a colorless, faintly acid liquid having an albumen like odor, physiological action: produces drowsiness depression, slows the circulation. In tatus and strychnine poisoning it is an excellent remedy.

FISTULA OR POLLEVIL:—Fistula is caused from a bruise from a kick or bite on the withers from a stallion, bumping his withers against a stable or from wallowing and turning over on a rock, in fact any way to bruise the periosteum of the bone, this causing a swelling to take place, and then it forms full of little openings called tubes, this disease is called incurable by some but I have always been very successful in treating it, I have never failed to effect a cure.

TREATMENT FOR FISTULA OR POLLEVIL:—Take a razor or sharp instrument and shave off the hair over the enlarged part and then you are ready for an operation, which is the only way it can be cured. Take a large scapel or knife and cut with the muscle an opening about an inch deep and 5 or 6 inches long, then take a sponge and saturate it with Monsell's solution, of iron then run it through the wound this will stop the blood, then gauge your knife and go another inch deep and use the Monsell again and so on until you go to the bottom of the tumor, there you will find it hollow and full of little tubes, then change knives, take a crooked blade knife and split those little tubes open good, then saturate with medicine.

Lesson 50.

TREATMENT FOR FISTULA AFTER OPERATION:—Cotton seed oil 16 oz. carbolic acid 1 oz. mix and shake well before using, inject in bottom of cut once per day and pack the opening with oakum to keep the wound from closing up at outside first, want wound to heal from bottom.

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Lesson 57.

OI. ORIGANUM—OI. Organum is an oil made from a plant called Wild Margorum. The flower is of a pinkish color or rose tint. It has heavy leaves, and is a native of this country and of Europe. I have seen it growing abundantly in this country in Virginia, and also in Pennsylvania. I think it blooms from May until October. It has a peculiar odor. When made into oil it is yellow, and smells like camphor. Origanum is used mostly in liniments, as it is very penetrating.

OLLEUM CEDAR—Oil of cedar is made from the cedar plant that grows all over the United States. You have seen it growing in Texas, have you not? The oil is used mostly in liniments mixed with other oils and cut with alcohol.

CAMPHOR—Camphor or Cam-pho-rae is obtained from wood of Cinnamomum Camphorae. It is imported in the crude state, that is before it is purified. Camphor has been found in different plants, but commercial camphor is only derived from two plants. Camphorae of Cinnamomum and Dry-o-ba-lo-nops properties comes in white masses of a tough crystalline structure, easily dissolved in a little alcohol, ether or chloroform. I will not explain, as you already know what it is, but will just simply say that you will get it in the following forms for your practice: Camphorae—Gum camph., dose internally, dr. I, Aqua. Camph. (water camph), one dr. to one oz, Linimentum camph. (camphor liniment) is composed of two parts of camphor and 8 parts of cottonseed oil. Used in coughs as well as liniments. Spirits of Camphor (spiritus camphora) is composed of 100 parts of camphor to 1000 parts of alcohol.

PHYSIOLOGICAL ACTIONS—Antispasmodic or nerve stimulant, counter irritant irritates the skin.

Lesson 58.

GELSEMIUM YELLOW JESMINE—(Extractum Gelsemii Fludium) is made from the root of the above named plant. What do the above words mean? Ans.

—Fluid extract of gelsimium or F. E. Gelsimium. Dose, 1 dr. to 1 oz. Physiological actions, nerve seditive lowers body temperature.

OLLEUM TIGLII (croton oil)—Croton oil is not much used in the horse practice, but I will give you the way I use it, and you will understand why it is not used very much. A fixed oil expressed from the seed of croton tigilum. When given to horses at all, 10 to 25 drops, cattle you may give one-half to one dram. Physiological actions—Is a powerful irritant undiluted, and seriously injures the skin, causing blemishes and may cause fever. Cattle are the only animals that can take it internally with safety. It can be used in dogs if used with caution. For cattle as a purgative, when the bowels will not move, you may give 40 drops of croton oil to one-half drachm of calomel. Or you may give ol. tiglii with linseed oil or in salts, but I think that it acts best with calomel. I don't think I told you this, so I will say something about the breathing in horse. A horse in a healthy condition will breathe about one time to every three beats of the pulse. In other words he breathes only ten to twelve times per minute, and if any faster, something is wrong somewhere. There are four stages observed in fever. (1) Weakness, loss of appetite, and low spirits. (2) A shiver or chill, uneasiness, flanks move quickly and short, nostrils more or less distended, urine scanty and highly colored. (3) After a time coldness is succeeded by a great heat and thirst, sometimes one leg or ear is hot and the other cold. (4) when the fever has lasted for some time the skin becomes moist, the bowels and kidneys act more freely; the pulse becomes more full and the mouth moist. When fever is caused or accompanied by disease, it is called symptomatic fever, or after an accident the same, or from liver or lungs. Fever is called idopathic when not caused by disease or accident. Bleeding in the veterinary practice is almost discarded. We bleed in case of congestion as I have told you. Another thing, while we are on this subject, is this: Any animal, while sick, should have a good stall, and fixed so he can be comfortable, and have no loud

talking or any kind of fuss while he is sick. If you will watch, you will see that horses are like men in many respects when they are sick. They are nervous and have very little patience. So I would advise you to always remember this point as it is very important. If any disease be of a depressed kind, give iron and nuxvomica and general diet. The nux will keep the bowels regulated.

Lesson 59.

REVIEW LESSON—How does the heel of a horse act when he is walking?

If a horse is fifteen hands high, how ought his feet to be cut to be proper?

Why should we not have bearings on the heel of a horse when shoeing?

Should a horse's foot be trimmed from the bottom when shoeing? Why not?

Why should the nails in the shoe fit perfectly and even?

How long ought a shoe to stay on a horse?

Why should nails come out even when shoeing a horse?

How often does the horse shed the frog when in a healthy condition?

How many frogs has the horse in each foot, and what are their uses?

Can a foot be healthy without moisture, and why, if not?

Could a foot be healthy with water all the time. If not, why?

Give an illustration why a foot can't be healthy with too much water. Without any moisture.

How many purposes is the nonsensitive frog for?

How many reasons can you give why the nails should come out on a level?

Can you tell me what causes corns on the feet?

Tell me why the frog should not be cut away.

Is it wrong to place a hot shoe to a horse's foot? If so, why?

What effect will too much heat have on the foot?

What is the eye? What is the retina of the eye?
What is the iris of the eye?

In the center of the eye is a small, black spot. What is this called?

What is the outside of the eye called?

Horses that go blind once per month—what is that called? What is it if not moon-eyed? What causes the eye to become this way?

What spreads the tears over the eyes? What are the tears composed of?

What are wolf teeth sometimes called by people who don't know anything about the teeth?

Do these teeth we speak of ever hurt the horse so far as value goes?

What is inflammation of the bowels? What causes it, and what time of the year are horses most subject to it?

Is there any bloat or swelling with this?

What is the cause of flatulent or wind colic?

What is the last treatment for this disease?

How can you know this disease from any other?

How often do you give medicine, and how can you tell when medicine has acted?

Tell me how you would trocar a horse.

What are we governed by in treating internal diseases?

What is the natural condition of your horse's pulse?

What does nature do in regard to curing a horse when he is sick? What does disease do?

Does medicine cure? What does it do then?

Does nature and disease work in harmony with each other?

What is the first stage of a disease? Second and third?

Where is the most proper place to take the temperature? Where is the proper place to take or feel the pulse.

What is spasmodic colic and what is the cause? Give me the symptoms of spasmodic colic?

Lesson 60.

Give me the receipt for spasmodic colic? How often do you give medicine, and how can you tell when it has or hasn't had the desired effect?

What is inflammation of the kidneys and what is the cause? Is this a prevalent disease or not? What are the symptoms in the first stage? What kind of a pulse has he?

What is lung fever or pneumonia? What time of the year do we mostly have it? What are the symptoms? Give treatment. How often do you give medicine?

What is thumps? What causes thumps? Did you ever know of thumps killing a horse?

What would be your objections to a horse that had the thumps if it did not hurt him?

What proof have you that it does not disturb the heart?

What is the peritoneum wall?

When was chloroform discovered? What is the color, and what is it composed of? What are its medical properties and uses? What is the effect when applied externally? How long would it take you to put a horse to sleep with it?

What do we use opium for and in how many forms do we use it in veterinary practice?

Opii pulvis—means what? What is opii made from?

Will you please name the receipt for flatulent colic? How often do you give this medicine?

What is canibis indicia, and where is it obtained? It has another proper name, what is it?

Of the F. E. Canibis ind. how much is a dose? What is its effect?

What does acidum hydrocyanicum mean? What other name has it?

Dilutum means what?

What effect does hydrocyanic ac. have on the circulation?

Lesson 61.

What is fistula, the cause and diagnosis?

What is the treatment for fistula? What do you use to stop the blood and how? What do you find at the bottom of the fistula? What medicines do you use and how?

What does acidum carbolicum mean? What is carbolic acid made from? When pure what is the color? What will dissolve it? What else is it used for?

Oleum Gossypii Seminis means what? What is it made from?

When was peroxide of hydrogen discovered? By whom and where? What do we principally use it for in veterinary practice?

What is the word prescription derived from and what is its meaning?

What does the word cito mean? Curare, tuti, et. jucunde?

Give me the mark for oz., dr., prescriptions, scruples, etc.

What is a maximum dose? A minimum dose? What does a teaspoonful represent? What does a dessert spoonful represent? One tablespoonful? A wine glass? What a coffee cup?

Div. is what? What does T. I. D. or T. D. mean? What does Q. D. mean? What does filtra mean? F. I. means what? What does F. E. mean? Inj. means what? In. or in. di. means what?

Regulating the dose, how much should a three and one-half-year-old take? Ans.—Full dose.

From one and one-half to three years old? Ans.—One-half part.

From nine to eighteen months? Ans.—One-fourth part.

From four and one-half months to nine? Ans.—One-eighth part.

From one to four and one-half months old? Ans.—one-sixteenth part.

What causes sunstroke or heatstroke?

What are the symptoms of heatstroke? How high

does the temperature go sometimes? In what part of the country are they most subject to it? What is the treatment?

What do we mean when we speak of enlargements on a horse? Give treatment for wind galls, so called.

Lesson 62.

Give me prescription that you would use in blistering.

Do these puffs or wind galls always lame a horse?

What is blind staggers? Symptoms? Treatment? How much blood do you take?

What is lockjaw or tetanus? What is the cause? How many different things will bring it on? What are the first symptoms we see? If we keep him alive fifteen days, what is the chance? If twenty, what is the chance? Give me treatment for lockjaw.

OI. Organum is made from what plant?

What countries is the plant a native of?

What is oil of cedar made from?

What are these oils mostly for?

What is camphorae or camphor made from? What is the physiological actions of camphor?

What are the four stages observed in fever?

When fever is caused or accompanied by disease, what is it called? When caused from liver or lungs, it is called what?

Is bleeding practiced very much now in veterinary practice?

What does Xtractum Gelsemii Fluidum mean?

What other name has Gelsium?

What is the physiological action?

Ollium tigllii means what?

What is a dose for a horse? What for a cow?

How do the muscles of a horse lay? How then would you cut not to cut a large blood vessel?

How many times does a horse breathe per minute when he is breathing natural? What is his normal circulation? How can you tell when a horse has fever?

Lesson 63.

BONE SPAVIN—Bone spavin is found on the hock or hind knee of horses and mules. First, there will be found a swelling and that will go away and a hard bunch will be left, and you will hear people say: "My horse is lame, don't you see that big knot?" I will say here, and you must not forget it, the knot or bunch that you see on the leg does not cause lameness, and it is a big mistake that people get into their heads about spavin. Spavin is caused from strain, from hard pulling or from getting leg hung in a hole, or from falling through a hole in a bridge, etc. Anyway, it is caused from a strain. It is a strain of the cartilage of the capsul that surrounds all joints. A cartilage is a hard gristle that holds the joints together and prevents the bones from coming together. Now, if you will listen, I will tell you what causes a horse to go lame when he has spavin, and you will agree with me that it is not the bunch on his leg that causes lameness, but that it is caused from the friction of the joint. The capsul being ruptured or bursted, the synovia fluid (or joint oil—you have seen it when cutting a beef's knee—that is the same thing) which keeps up the wear and tear of the joint (in man or beast) is allowed to leak out when the joint is ruptured, and the horse gets lame from the friction of the joint. Proof: You take a spavin horse (ask any one who ever owned one) and they will tell you that when he first starts off, after stopping a while, he can't hardly go. Why? Because, while standing the oil has leaked out, and the parts rub together roughly and cause lameness. Now, what makes the bunch on the outside of the rupture, or the knot, as you may call it? This is easy enough explained. If the lacration from the joint (the joint oil) deposits itself outside of the bone and under the skin, what does it make? It makes bone, of course, just as all synovia from other joints not ruptured. Of course if it was put there by nature to make bone, it will continue just the same after the rupture as before. It is inhuman to cut this

bunch off as some people will advise. Don't you see that it will only make bad matters worse? It will only make the rupture larger and more difficult to cure with the right treatment. Treatment: If you get to it early, you can kill it with a salve made as follows:

Powd. canth., Oz. I.

Beniddide of mercury, Oz. SS.

Adepis Q. S., soft paste.

M.

Sig. Shave off the hair and take a little sharp instrument (called puncturing iron) or knife blade and puncture or prick 75 little holes in the bunch to the bone and then apply medicine to the parts and bandage. (Make bandage as I taught you in treating wind galls) Keep this up nine days and then let him stand 20 days or more to give rupture time to knit together. You see the puncturing and the salve gets up a great inflammation, and this is what helps to effect a cure. In a very bad case, say from one to one and a half years' standing, you would have to fire the horse. I will proceed to tell you how this should be done: You first shave off the hair, as before, and get about three sharp-pointed firing pins, (made for the purpose, or you can have them made) swelled at one end like a soldering iron, so it will hold the heat. Build a fire and place your irons in the fire, and get them to a white heat, (not red) have some one to hold up the opposite leg so he won't kick you, and proceed to fire as you punctured, or not so close together. Make the holes about a quarter of an inch apart and go all over the bunch, puncturing it to the bone. Bandage as before and use hog lard instead of medicine.

Lesson 64.

FISTULA OF THE STERNUM OR BREAST BONE—This is a very difficult disease. The sternum is an elongated cartilage that the ribs attach themselves to, and protect the lungs, heart, etc., from jars and injury. Many people think we only have fistula on the wethers, but we have it on various parts of the ani-

mal. We call it pollevil when on the pole of the head but it is the same as on the wethers, and would be called fistula. Fistula of the sternum is caused mostly by a prick or a kick. Let me give you some experience here which I have had lately with fistula of the sternum at Denison. Just six weeks ago a man by the name of Steve Hitchcock had a fine race colt to jump on a picket and a little back and upward, struck the sternum about the fourth cutlet (rib) that ruptured the cartilage of the sternum, and caused a running sore. He and another man began doctoring it, injecting first one thing, then another. They kept that up till the second Tuesday in December, which was about two weeks from the time that he sent for me. I went and in the presence of another veterinary, told him that it would never get well until an operation was performed. He seemed to doubt my opinion and kept up the same treatment until the 12th of January, 1904, when he called me again. I went, and on examination, found that the bone had become necrosed about six inches, and was running corruption behind four leg and in front at the same point where the picket had entered, which went directly to the place mentioned. I told him that the bone was necrosed, and that his colt was in much worse condition than when I saw it before. He submitted to an operation and the work was done. First, harness was put on the horse, and he was cast, turned on his back, legs drawn down, with one man to each leg (to hold to side) and one to hold the head. The operation begun by first cutting the skin about six inches backward and about an inch deep, then drawing cotton saturated with monsell's solution through the cut. The blood was stopped, and I continued to cut until I went to the breast bone. There I found this diseased bone; then with a curet (a sharp cup-shaped instrument) I scraped the bone, taking away all the diseased part, which must have been a tea cup full or more. After the operation I washed out the wound good with a weak solution of bichloride, about one to 500, and then packed with absorbant cotton and let

stand four hours. Then removing the cotton, I proceeded to treat as I taught you in former lessons. She stood the operation well, and if no bad luck befalls her she will be sound and well in 25 days. Now if you will follow my instructions above, you can perform this operation. The main thing and most successful thing in fistula is to not be afraid to cut. Give me prescription for treating fistula.

Lesson 65.

BLAIN IN CATTLE—This disease has many different names. It is known better by the symptoms. The animal is stupid and dull, eyes run water and are inflamed, and a continual stream of saliva runs from the mouth. You will also find ulcers under the tongue, in the back part of the mouth, or both. The lids of the eyes swell and the lids may become red. There may be swelling on other parts of the body as the disease advances. The saliva may be streaked with blood, the pulse quickened, the flanks heave and the animal begins rapidly to loose flesh. Treatment: The ulcers may be lanced, making a large opening. You will find a yellow fluid to run out, and likely puss. Take ten grains of carbolic acid, one dr. Tr. opii to one ounce of warm water. Then take a goose or chicken feather from the wing and thoroughly swab out and clean the ulcers. After this is done, take salt and water and wash the parts and use my blood purifier in tablespoon full doses, twice or three times a day as you think the case requires it. If the bowels are constipated, give 15 oz. sulphate magnesia in quart of warm water. Repeat this every twelve hours until the bowels move good. If the fever is high, give 20 to 30 gts. of T. R. Aconite root every 30 minutes until fever goes down. The animal must be well cared for and kept in good shelter. Feed on soft feed, such as bran mash, etc. The cause of this disease is from eating poisonous weeds, etc., generally in the spring while cattle are pasturing. After death, if you will dissect, you will find the stomach lined with little ulcers, also the intes-

tines. The normal pulse in cattle is 55 beats per minute. Respiration about 12 per minute. The most accurate place to find the pulse is under the tail. Purgative for cattle when sick with blain: This is to be given immediately after you detect what the trouble is.

Sulphate of magnesia. oz. 18.

Oleum Tiglii, Gtt. 10.

Calomel, Gr. 30.

Warm water, qt. 1.

M.

Sig. Give at one dose and if it does not have the desired effect, repeat in 24 hours. Now, don't forget if the weather is cold or even damp, the animal should be kept in shelter.

Lesson 66.

CONSTIPATION OF THE BOWELS—Cattle are very subject to this trouble, especially in the winter and early spring, but may be found at any season of the year. The most common causes are bad treatment, unsound food, starvation, poor shelter in bad weather. These are the first symptoms of all inflammatory diseases—Symptoms: The feaces (or dung) is seen in hard lumps, and requires quite an effort to pass it. The nose becomes dry, the breath hot, and great change of countenance on part of sufferer. The pulse will be found quick, and everything will indicate fever. No time should be lost and you should resort to treatment at once. Soft water and castile soap should be used freely per rectum and warm linseed oil given in 16 oz. doses every six hours until bowels are open good; then give my blood purifier in tablespoonful doses every 12 hours for at least two weeks. Be sure to feed on soft feed, such as bran mashes and green grass, if in the spring. Your cow will die every time if you don't resort to proper treatment.

DIARRHEA IN CALVES—This is a common and very destructive disease. Many calves are lost for want of proper treatment in this disease. It most frequently occurs before the calf is three weeks old; it is then caused by the milk being unwholesome, or being

exposed to cold, or from being half starved; then one full meal will produce diarrhea or purging. It frequently occurs when the mother dies, or the calf taken away and half cared for. Great care should be taken at the time of weaning. The changing of food or gruel should be given with caution, as too large a mess might contract the disease, and it is very difficult to arrest. The sudden change must be affected slowly, the new milk being mixed with gruel or skimmed milk. Symptoms: The calf is continually straining. The matter that is passed is mixed with slime or mucus, sometimes streaked with blood. The calf staggers when he walks and refuses to eat, or take food of any kind, and becomes very weak. At the latter stage of this disease the calf is hardly able to rise alone, the dung becomes more thin, and is mostly mucus and blood. The best thing in this disease, as in all others, is to take it in time. Treatment: Take tr. of opii, one to two dr., boiled sweet milk, one-half pint. Mix together and give every six hours. If the purging is not arrested, add to this one level teaspoonful of chalk (prepared), the chalk being well powdered. The dose will depend on the age of the calf. If only a few days old, one-half the quantity will be sufficient. As he begins to recover, great caution should be taken not to feed him too much at once.

Lesson 67.

COSTIVENESS IN CATTLE—Calves are sometimes attacked with this disease when only a few days old. It is then caused by coagulation of the milk in the bowels, and you will see the bowels terribly distended. In this case you will give very thin meal gruel (corn meal I mean) and tablespoonful sulphate of magnesia as drench, and give freely, injections of castile soap and warm water. The cure in very young calves is not certain, but it is not well to sit down and do nothing. This has, in most cases, been effective. When calves, two or three months old, become affected it is usually due to too sudden a change of fluid food,

as from gruel to dry, or stimulating food. This is a dangerous complaint, as the paunch is likely to be filled up with undigested food. Now an operation with the hand (have the arm well oiled) and empty the back bowels, may be of great value—rake it well. Also dissolve one-half pound of epsom salts in one pint of warm water and drench. If this does not operate in six hours, repeat until it does operate. Then a small quantity of linseed oil will be good, and as the animal begins to come to himself again, give a small quantity of my blood purifier once or twice per day in food, as he will eat or drink it. This will correct digestion and give him pure secretions. I will give you a few of my ideas on bleeding. I do but little bleeding. My reasons are easily explained. First, the food and substances that enter the stomach make the blood, and the blood makes every secretion, and secretions act to organs the same as moisture does to vegetables. If you deprive a plant of moisture, decay is the result. It is true that blood is life, and when you bleed, you are sapping away vitality. Remember that medicine does not cure man or beast; that all we can do is to assist nature by application and administration of medicines. Then we can see the wrong that may be done in bleeding away the best agent that God has been so wise as to create. No man or beast can have too much pure blood. Show me a man with a good supply of pure blood, and I will show you a robust, healthy, man; one that if he should meet with a serious wound, and you should ask his physician if he thought he would recover, you would hear him say: "Well, it is a serious wound, but a man with an extraordinary constitution, a good supply of blood and lots of vitality, like him, has a good show for recovery." But reverse the case and the doctor will sigh and say, "well, I don't know; he has but little blood, vitality is small, and we can only hope for the better, but chances are against him. So you see if the blood should be impure, and you bleed him, you take away the good blood with the bad. So you will only make bad matters worse. The animals

need all the vitality they possess to remove disease. If a man only bleeds to start up circulation where there is congestion, I have nothing to say against it, for I do that sometimes, myself. But some men bleed by the gallon to purify the blood. If your horse's blood is bad, and he is in a bad condition, I would advise you to give him a course of my blood purifier. This will cleanse the blood of its impurities, and then the blood will produce more secretions, and that is what is needed to make a healthy constitution. As a general rule, men that are in favor of bleeding are men who know but little (or nothing) of the physiology of the blood, and of the secretions.

Lesson 68.

HOOSE IN CALVES—This is a disease to which calves are very subject. The calf coughs as if he had a cold, but soon runs into consumption and results in death. After death, thousands of little worms may be found to inhabit the air passages, but before death the latter symptoms are a slight discharge at the nostrils, often tinged with blood, the breath is hot, the pulse quick, the eyes run water and the bowels costive. Still, in some cases, I have seen the bowels loose, but streaked with mucus. Treatment: As soon as the calf begins to cough violently, you should make it as comfortable as possible. Give it my blood purifier in teaspoonful doses every six hours, and twenty to thirty gts. of turpentine. If costive, give good injection of soap suds and warm water after the turpentine has been given. If the fever is high, give tr. Belladonna and aconite root, 12 to 15 drops of each three or four times a day till fever abates. The blood purifier is to cleanse the blood and open the bowels. The turpentine is given for those little worms. Tr. aconite and Belladonna is to reduce the fever and prevent the excitement to the heart so it will perform its affair properly. Tr. of Veratrum and Digitalis, 10 drops of each, will substitute for aconite and Belladonna. Learn this, and do not wait until your calf is sick, and then have to look it

up. Always take the case in time, for that is half or more in the successful treatment for man or beast. A stitch in time saves nine. Canker in the mouth of calves follow each other so fast in cutting that the gums and mouth become sore, and this is not an uncommon disease, either. Symptoms: The calf refuses to suck, and you can see a continual discharge from the mouth. Numerous little pimples will be formed in the mouth, or on the tongue. As the disease progresses, these little pimples run together and form ulcers, the breath becomes very offensive. Treatment: Give one and one-half ounces of epsom salts, dissolved in warm water. Repeat this dose every six hours until bowels are loose. Then keep in good shape by giving tablespoonful of my blood purifier every twelve hours. Burn ulcers with diluted carbolic acid by the use of a mop on a stick made of cotton, and follow this with alum wash. Repeat this every morning until ulcers are dried up. If the calf needs nourishment, give him milk, just milked from the cow. You can do this with a syringe.

Lesson 69.

FLUX OR SLIMY BLACK ROT IN CATTLE—

This disease is very prevalent in spring and fall. It is more common on wet or swampy land, but is found on all kinds of land. It is one among the worst diseases that cows are subject to, and is a common disease. It destroys more cattle than all other diseases put together. It begins by frequent effort to expel the dung, which is thin, slimy and dark. The animal is restless and shows plainly that he is suffering great pain. Frequently dropping down and rising again, and you will hear a rumbling sound in his bowels. If treatment is not readily resorted to, you will lose the case. although he may seemingly get better and chew the cud, but he will get weak and his food will go through him undigested. There is no question but what this is a liver complaint or affection, and as we surgeons make the diagnosis, we will tap the animal lightly over the

liver and he will be seen to shrink, or the blow cause apparent pain. If these symptoms are present, there is no doubt but that this dreadful disease is present. I might say right here that if you were selecting cattle for the market or otherwise, test the liver, as it will enable you to detect any unsoundness of it, and may be money in your pocket. for this disease may be lurking in the system, and the animal be apparently well. Now, as this disease progresses, the dung runs off, and has a very offensive smell; the hair stands on end and the nose dry, the pulse is quick, the eyes inflamed, and the animal breathes hard. Causes: The causes are various. Among them is taking cold; getting hot from long drives, and turning on damp pasture, cattle especially that are used to being kept up. Or if it be a cow, it may be taking cold after calving. It may be produced by bad sheltering or poor food during the winter. There is perfect evidence that the mucus membrane of the intestines is inflamed, so a good blister opposite affected part will be of great value. Treatment: Give small doses of raw, warm linseed oil three or four times a day. Also give Aconite and Belladonna in 15 gtt. of each to run fever down, and one-half oz. opii every three or four hours until rest is assured. As the animal begins to recover, give one tablespoonful of my blood purifier twice per day in bran. By using the blood medicine, it will purify the blood and secretions, and act slightly on the bowels. And as it will be dangerous to stop the purging too sudden, these powders will be of great value. It is also good for the purification of the secretions of the liver. You should be careful for a while, make him comfortable, and do not allow him to eat too much green food at once. But if this treatment fails to stop the purging, you may know that the liver is too badly deranged for the disease to yield, so you must give blue mass twice a day, night and morning—the dose may be half a scruple. Keep the animal out of bad weather, and about every four or five days give four or five oz. of sulphate magnesia in one quart warm water.

Lesson 70.

HINTS RELATIVE TO MILCH CATTLE—When your cow has impure blood, you may see the hair drop off in patches, also a scurff will be seen at the roots of the hair, and lumps on the skin. If let run, ulcers and sores come out on the neck and body. There may be seen pus and corruption discharging from the eyes. This disease is a twin brother to farcy in the horse, and it is nothing more or less than badly adulterated blood. Causes: Bad shelter in fall and winter, unwholesome food, half starvation, neglect and carelessness, with cruelty and ignorance of men. Those are the principal causes. Now let me reason with you awhile. I will give you a scientific view of how the milk is produced, then you can better understand what kind of substance you are daily taking into your stomach when you drink the milk or eat the butter made from such cows. I certainly feel sure, if you understand the truth of how milk is produced, that there would be more interest taken with every one, and there would be more fat and healthy cows. Now, I will explain the process of how milk is produced. First, the food and every substance taken into the stomach makes the blood. The organs of digestion are as follows: The mouth, teeth, tongue, glands, esophagus, stomach, duodenum, intestines, liver, spleen, pancreas and thoracic duct. The last is the largest of the absorbant system and the canal through which much of the chyle and lymph is conveyed to the blood. It begins by a convergence and union of the lymphatic on the lumber vertebrae, below and in front of the spinal column; thence it passes upward through the diaphragm to the lower part of the neck; then curves forward and downward, opening into the subclavian vein near its junction near the jugular vein, which leads to the heart. Consequently we see how blood is produced. Then the blood produces every secretion, and every secretion is supplied with mineral and nutriment properties. As milk is a secretion and produced by the blood (and the truth is, there is nothing produces milk but the blood) you

can see how important it is to have pure blood in milch cows. Milk, when produced, is secreted in the lacteal glands of the female. These glands consist of numerous follicles, around an excretory duct, which unite with similar ducts coming from other places. By successive unions they form large branches called the lacteiferous ducts, which open from twenty to thirty minutes orifices on the extremity of the lacteal glands. The most constituent of milk in a healthy, pure-blooded animal is casine. It also contains oily and saccharine substances. Now, of course, I am aware that this information is not new to science, but there are millions of men, women and children who eat butter, drink milk from cows, who never give it a single thought as to how milk is produced or where it comes from, so you see why I take the trouble to make this so plain to you. You will now see the necessity of feeding sound food to milch cows and to keep their blood and secretions pure and healthy. Think how many cows you see that are poor, scabby, and likely running sores all over their bodies. the hair falling off in big patches, and from every indication the blood is very impure, and we might term it (excuse me) rotten. If you wish to see what you are taking into your own stomach for the blood to impregnate every organ with these poisons, or impurities through the secretions, look at the milk from such a cow through a magnifying glass. I am sure that you will never use such milk again with a good appetite, if at all. Now you can better understand my blood purifier. Give one or two doses per day and you will be doubly paid for your time and money spent.

Lesson 71.

SPLINIC FEVER—This disease which has its origin in low lands of the western states mostly, (we have it in Florida sometimes) is very destructive and kills lots of cattle by being communicated from one field to another. The germs are killed by the first heavy frost, and are only communicated to northern cattle by cattle

driven in there or shipped, or being fed at the same place. The animals that take it this way do not transmit it to another; that shows that it does not exist in climates where frost occurs. There is no danger of this disease breaking out where cattle are not permitted to pasture, even in summer. We have this disease a great deal in Texas. It was taken to Missouri by shipping cattle from Texas there, and the loss was very great to the native stock-raising men of Missouri. (To those that pasture their cattle). The stage of incubation is from two to six weeks. The blood undergoes a change and some of its elements escape into the tissues of the body and into the urine, giving it a bloody appearance. Diagnosis: As in pneumonia, the temperature runs up to 104, or even to 106; the pulse rises from normal to a hundred or more. The fever is generally preceded by a chill, the dung and urine becomes scant, high-colored or bloody, the milk fails rapidly (if in a cow), yellow water is seen to discharge from the mouth and nose, looks wild out of the eyes, the back is arched, the flanks become hollow, the gait slaggering, the hair looks rough, the animal has a cough, the urine coagulates on boiling, the mucus membrane of the nose becomes yellow and the anus red. There is but little trace of the disease in the first, second and third stomachs, but the fourth stomach shows congestion, and the intestines are tinged with blood. The liver is not affected, but the gall bladder is filled with dark colored bile. The kidneys are also congested and the secretions in the bladder are stained with blood and the spleen is much affected and enlarged. In healthy cattle the spleen should weigh from one to one and a half pounds, but in cattle with this disease, the spleen has been known to weigh as much as 7 or 8 pounds; hence we give it the name of splenic fever. Treatment: The animal should at once be put in a comfortable stall, well bedded, and receive good attention. Give following prescription every two hours until fever abates: Give immediately 18 oz. sulphate magnesia dissolved in one

quart warm water. Give this at one dose.

F. E. Aconite dr., 1.

Geantian Rad. F. E., oz. 1.

Amon. chl., oz. 1.

Potass. nit. oz. 1. m.

Give one oz. dose every hour.

Lesson 72.

TERMS USED IN PRACTICE.—1. Acid? Ans. sour. 2. Accelerate? Ans. growing quick or faster, as an accelerated pulse. 3. Abcess? Ans. a swelling containing pus. 4. Ablactation? Ans. a weary from suckling. 5. Abortion? Ans. to lose the young before time. 6. Abcission? Cutting away or removing a part. 7. Absorb? Ans. taking up or swallowed up. 8. Absorbent? Ans. vessels which absorb or suck up, as the lymphatic glands. 9. Absorption? Ans. taking up by the blood vessels of the body any substance. 10. Acardiatrophia? Ans. atrophy or wasting of the heart. 11. Abrade? Ans. to wear away. 12. Abdomen? Ans. the portion of the body containing the stomach and the intestines. 13. Abnormal? Ans. that which is not natural. 14. Abomasum? Ans. the last or fourth stomach. 15. Actual? Ans. the production of an immediate effect. 16. Aceni? Ans. strong growth of the liver. 17. Acid? Ans. sharp, irritating or a strong acid. 18. Acute? Ans. sharp, severe disease, those which soon come to an end, in contradistinction. 19. Albumen? Ans. substance resembling the white of an egg. 20. Albuminuria? Ans. that condition in which the urine contains albumen. Aliment? Ans. solid or liquid substance. 22. Affluence? Ans. delermative of blood to a part. 23. Alimentary canal? Ans. the bowels. 24. Affection? Ans. disease of some part. 25. Alkali? Ans. any substance that neutralizes an acid. 26. Etiology? Ans. relating to the doctrine or cause of disease. 27. Alterative? Ans. a medicine changing the function of the body. Aerate? Ans. mixing with air, as the blood does in the lungs of all animals. 29. Alveoli? Ans. the sockets in the jaw bone where the teeth are fastened. 30. Axanrosis? Ans. partial or total loss of sight from paralis of the

retina of the eye. 31. Adipose? Ans. fatty matter. 32. Aubury? Ans. a soft, spongy tumor. 33. Adhesive? Ans. that which adheres. 34. Adhesion? Ans. joining together. Anurism? Ans. dilation of an artery on the heart. 36. Adematrophy? Ans. wasting of the skin (atrophy). 37. Analysis? Ans. separating into parts. 38. Adenitis? Ans. inflammation of a gland. 39. Ancho-
losis? Ans. the stiffening of a joint. 40. Antiseptic? Ans. agents preventing putrefaction. 41. Aperient? Ans. laxative medicine. 42. Anesthetic? Ans. that which deprives the animal of suffering, such as chloro-
form, ether, etc. 43. Apoplexy? Ans. sudden affusion of the blood into the substance of the brain. 44. Ano-
dyne? Ans. medicine to allay pain. Aqueous? Ans. wa-
tery. 46. Antagonism? Ans. one contradicting another. 47. Anterior? Ans. in front. 48. Articulate? Ans. joining
logathro. 49. Anthelmintic? Ans. medicine to expel or to kill worms. 50. Asthma? Ans. a disease which causes a difficulty in the breathing. 51. Antiperiodic? Ans. a
medicine to prevent the return of the paroxysm in peri-
odic disease. 52. Astringent? That which causes con-
traction of the bowels. 53. Auricle? Ans. the external part of the ear. 54. Attenuate? Ans. to draw out, to make small. 55. Augment? Ans. to increase. 56. Aus-
cultation? Ans. the act of listening to sound.

Lesson 73.

1. Vertigo? Ans. dizziness. 2. Vesicle? A small blister. 3. Villi? Fine fibers. 4. Virus? Contagious matter. 5. Virulent? Dangerous. 6. Vision. The act of seeing. 7. Vital? Having or containing life, 8. Vivify. To bring to a vital state. 9. Vulva? The outer opening of female parts, the generative parts. 10. Wane? To decrease. 11. Warbles? Small hard tumor. 12. Withers? The long part of the shoulder. 13. Windgalls? A disten-
sion of synovia membranes. 13. Uterus? A lay in which the young are carried before birth. 15. Suture? A stitch. 16. Sympathy? The connection existing be-
tween two or more organs. 17. Synovia? A fluid re-
sembling the white of an egg. Thorax? The chest. 19.

Torsion? The act of twisting. 20. Trachea? The wind-pipe.

Lesson 74.

1. Diminution? Ans. lessening or decreasing. 2. Confluent? Running together. 3. Dilute? To make thin. 4. Condiment? Substance used to flavor food. 5. Excrescence? Unnatural. 6. Graminivorous? Feeding on grain or grass as feed. 7. Dilation? Expanding. 8. Florid? Red or scarlet. 9. Excrement? Refused matter. 10. Concretion? Adherence of a part. 11. Contusion? A wound made by a blow or bruise. 12. Foetus? The young before its birth. 13. Fomentation? The application of warmth and moisture. 14. Friction? Exciting circulation. Fumigate? Application of smoke or vapor. 16. Function. The office or duty of any part of the body. 17. Fundament? The anus. Fungus? An unnatural growth. 19. Ganghorn? Nerve fibers. 20. Gangreen? Death of a part. 21. Gastric? Pertaining to the stomach. 22. Gastritis? Inflammation of the stomach. 23. Generate? To beget offspring. 24. Genital? Relating to reproduction of young. 25. Gland? A structure of secreting. 27. Gestation? Being with young. 27. Gleet? Thin matter from an ulcer. 28. Glottis? The narrow opening of the top of the windpipe. 29. Graminivorous? Feeding on grass and other vegetables. 30. Diffuse? To extend or drive out. 31. Diarrhoea? Watery discharge from the bowels. 32. Diaphragm? The large flat muscle that divides the heart and lungs from the stomach and intestines. 33. Diaphoretic? A medicine which causes sweating. 34. Diagnosis? The distinction of one disease from another. 35. Diabetes? Excessive flow of the urine. 36. Develop? To increase. 37. Detergents? Medicine having the power of cleansing. 38. Desicate? To make dry. 39. Dermal? Belonging to the skin. 40. Depilatory? Any agent which causes the loss of hair. 41. Dens? A tooth. 42. Delerium? Insanity. Deleterious? Poisonous. 44. Degenerate? To become worse. 45. Defecation? Purifying from impurities. 46. Decompose? To decay. 47. Debility? Weakness. 48. Cystitis? Inflammation of the

bladder. 49. Cystic Duct? The duct which proceeds from the gall bladder.

Lesson 75.

1. Cyst, a small bladder. 2. Contorted, twisted. 3. Chyme, the food modified and prepared by the stomach. 4. Contagious, a disease that may be communicated by breath or in contact with the body. 5. Constriction, drawing or binding together. 6. Congestion, clogged blood. 7. Cicatrice, scar from a wound. 8. Conception, fecundation by action of a male. 9. Comatose, constant sleep. 10. Coma, drowsiness produced by depression of the brain. 11. Coition, the act of copulation. 12. Colon, a large gut. 13. Collapse, falling together. 14. Coagulate, to clot. 15. Castrate, to deprive of testicles. 16. Curb, a soft swelling. 17. Culdesac, a sack closed at one end. 18. Crusta, a scab. 19. Crisis, the point of a change. 20. Costa, a rib. 21. Corrugation, contracting the skin into rinkles. 22. Corrosive, that which eats away. 23. Copious, a discharge. 24. Convoluted, rolled together. 25. Convalescent, health after sickness. 26. Chronic, lingering, long standing. 27. Castrate, to geld. 28. Chondritis, inflammation of a cartilage. 29. Chyle, bile. 30. Chalybeate, any medicine that contains iron. 31. Cerebral, pertaining to the brain. 32. Caustic, any medicine that burns. 33. Cathartic, purgative medicine. 34. Cataplasm, a poultice. 35. Carotid Canal, a canal through which the carotid artery passes. 36. Caraminitive, medicine which warms or stimulates. 37. Capsule, a sack or membranous bag. 38. Capsular Ligament, a ligament that surrounds a joint. 39. Capillary, hair like. 40. Callous, a hard deposit, bony.

Lesson 76.

FRACTURES OF THE BONES—There are three kinds of fractures: simple, compound and complex. In simple fracture the bone is broken without any complications. In compound the ends of the bones push through the flesh and protrude. In complex the bone is shattered in several pieces. How to test for broken limbs: You can tell by the unnatural position of the

limb, the way it hangs, by the grating of the bones upon one another when the parts are moved. As a rule, bones are more easily repaired in cattle than horses, owing to the cattle being more quiet. How to treat a fracture: Place the bones as near together as possible, and prepare plaster made of plaster paris. Make the plaster paris by applying water until you have a thin paste. Then apply to the bandage, say about six or eight feet long, then holding the bones to place, go round and round the limb until your bandage is all taken up. Make sling and swing the animal before you undertake to apply the bandage. Let bandage stay on about 12, days and keep in swing about 4 or five weeks. Feed on soft feed and keep bowels well open. Compound fractures are nearly always fatal, or if broken in a joint where the synovial fluid is allowed to leak out, it will leave the joint stiff. My advice would be to kill the animal in a case like that.

Lesson 77.

WOLFE TEETH—Those teeth are small teeth called blind teeth by those that are not posted on the tooth subject. They come out just in front of the molar teeth above. Some think they effect the nerve, some think they cause enlargements on the head, some think they cause gleeing at the nose, some one thing and some another; but let me say right here that they never cause any serious trouble. They do not form abscesses, they do not cause big head, neither do they interfere with the mastication of the food. When there is a knot on the head, it is caused from a molar tooth or else it is caused from a kick or hurt of some kind. Most all horses have these teeth, but most of them loose them out while eating, and should the knot or enlargement be found on the head (nomatter what the cause) and teeth be found in the mouth, why then, of course the blind teeth is the cause of it. Now remember what I have said on this subject, and don't be led to believe that these teeth (called blind teeth) cause any trouble, whatever. Horses very often have

toothache. How to know it: It will be noticed by the horse holding his head to one side while drinking or eating. We also have teeth with ulcers on the root just like a man. We detect this with a tooth sound or a little hammer. When you tap on the tooth that is affected, he will give way to pain. A discharge from a tooth is often taken for nasal gleet, and sometime for glanders by those that know nothing regarding stock, and let me tell you right here they are few and far between that know anything about the diseases of stock. Lots of men are good judges of horses, but know nothing about the diagnosis of a disease. They are excusable, however, for they have never been taught anything on this line. Sometimes when the lower teeth is ulcerated, it will break out at the lower part of the jaw, and sometime at the root of the tongue, and the odor is just awful to smell. Sometimes a tooth gets broken off or pulled out, and one below or the one above (if it be a lower tooth out) will extend up until it cuts the gum and even prevents the proper mastication of food and causes the horse to suffer a great deal and, even cause death—if not directly, indirectly. Such teeth should be removed. Uneven teeth very often lacerate the mouth and cause much trouble. All such teeth, if sound, should be dressed down smooth by the use of a tooth rasp, and if decayed, they should be pulled out. We have other horses that have a mouth called parrot mouth. This is where the upper nippers protrude over the under ones or the under ones come in front of the upper ones. Such teeth should be kept cut off to keep from lacerating the gums. You should never let a colt's tooth stay in the mouth long enough to cause the gums to inflame. I will proceed to tell you how they should shed: At two and one-half years old the colt will shed four teeth, two in the center below in front, and two above. These teeth are called nippers. At three and one-half he will shed two more below and two above. At four and one-half years, he will shed the corners, and at five they are all grown. Then you will hear people say he has a full mouth—they mean he has grown teeth.

Lesson 78.

TEETH OF CATTLE—The calf is very often born with nippers, or they will show in nine or ten days from birth—I mean two nippers. About twenty or twenty-five days the second nippers will appear—the ones next to the middle ones—and about thirty to thirty-five days the corners appear and then he has all the nippers. In about twenty to twenty-four months he will shed the two center teeth, and they are replaced by two permanent teeth. At three and one-half years the next two shed. At four and one-half years the corners shed. From five to six years the teeth are full and round. From seven to eight we will find the nippers worn, and from eight to ten you will find the corners worn. From eleven to thirteen the teeth are short and wide apart, so there is no use to let a man put an old cow on you for a young one, no matter if she is dehorned. (This is done very often to deceive the people.)

Lesson 79.

RETENTION OF THE URINE—This is when the urine can't pass, and we call it retention of the urine, caused from inflammation of the neck of the bladder, diuretic medicines, etc. Symptoms. The animal will show colicky pains, try to urinate, and sometimes small quantities of matter will pass, and other times blood. It will have fever, respiration and pulse quick, very tender if you press just in front of the pelvis bone. The bladder is tender to the touch. If you examine the bladder per the rectum, and on pressure, you will find it very sore and tender. If there is a stone in the bladder, it can be felt by inserting the hand in the rectum. Treatment: Remove the cause if possible, give plenty of soft feed, giving no hay or hard feed of any kind for several days. Wash out the bladder good by inserting a catheter. Use Bichloride and warm water, about 1 to 1000. After you have done this, keep the kidneys well regulated by giving him two drs. acetate of potash once per day. Also give one ounce of nitro muratic

acid, 25 gtts., three times in drinking water.

Lesson 80.

TUBERCULOSIS IN CATTLE—Causes: From absorption of poison into the system, the poisons locating itself in the form of sores or tumors. These tumors vary in size from the size of a buck shot to the size of a goose egg. These tumors may be found on the peritoneum, on the diaphragm, liver, kidneys, etc. The flesh on such animals is unfit for food, yet they are eaten by many who know nothing about such being the case. The muscles will be found pale and soft. Some say it is hereditary. I sometimes think myself that it is, for I have seen sucking calves with it, and when examined after death, have found them full of tubercular tumors. Diagnosis: Loss of appetite, the hair looks rough, dull cough, she does not lick herself, the skin is yellow, she falls off in flesh very rapidly, the cough grows worse, diarrhoea nearly always follows, pain when the sides are pressed on, stand on feet while sick almost the entire time, and sometimes you will see breaking out on the body. Treatment: Apply mustard plaster to the chest repeatedly, and give oils, soft food, linseed meal, avoid grasses and hay or hard food of any kind. In first stage they may be fattened and killed for beef, but in the third stage I would advise you not to kill for beef. The flesh is unfit for food, even in the second stage. Remember to always keep the bowels open and give all the pure, fresh water he wants to drink. You may give the following prescription: Ferri sulph. ex., oz. 2. Gentian, oz. 3. Quin. Sulph., oz. SS. Mix. Ft. Chart No. 12. Sig. One pwd. three times a day.

Lesson 81.

SPAYING CATTLE—The best age to spay heifers is from eighteen to two years old. Deprive them of any kind of feed for 48 hours, also water. To prepare her for operation, you first throw her on her left side,

stretch her hind feet far behind her, and bring her fore feet to body and fasten to cirringer. Then shave off hair on right side just below last short rib. Now you are ready to use the knife. Make an incision parallel with the way the hair runs, about six inches long. Now pass your hand in, and when you come to the peritoneum wall, gently push through, using your index finger for a guide. After you are through the wall, you will feel for the womb; follow it up until you come to the fork, (you will find the womb forked) then follow up the right or left prong until you come to the ovary. Now draw this out and twist it off, don't cut as it will cause bleeding. The next step is to sew up the wound. First, sew up the internal wound with catgut, using some kind of antiseptic on your hands and instruments. Carbolic acid is good or bichloride of mercury, 1 to 1000. Be careful not to get any hairs on the inside of the animal, as it will cause trouble. Feed on light food for a few days and all is right. Don't forget that any one who can spay a hog can spay a heifer.

Lesson 82.

INFLAMMATION OF THE BRAIN—Inflammation may come on from fever. We have it mostly in warm weather, say in the summer months, the principal cause being too free flow of blood to the brain. This causes increased action in all the circulatory vessels. Diagnosis: There will be strong pulsations of the lingual arteries, also in the temporal arteries. The eyes are red, and sometimes the animal will fall, but generally rise again. There will be trembling of the muscles, and the urine will be highly colored and hot. There will be a grating of the teeth. Sometimes it is caused by impactions of the bowels. Treatment: Give a good purgative when you first make the diagnosis. Use prescription No. 87. Calomel, Dr. 1. Oleum Tig. lii. Gtt. 20. Linseed oil, O. I. Mix and give at one dose. Give injection of warm soap suds water: then give No. 87 as directed.

Lesson 83.

LEPTICEMIA IN CATTLE—This is caused from absorption of pus, or it is caused from letting a cow carry the after birth too long, and she absorbs poison. (Septicemia, a poisoning of the blood) After 41 hours, if a cow does not clean herself, (throw off the after birth) she should be attended to. First, grease your hand and arm well with lard, secure the cow, and gently insert your hand in her vagina—this will be easily done—then insert your fingers in the womb in a funnel-shape and work slow and with caution until you are in the womb. Now you may find the womb fastened to the cotylegeons (these are little knots that are found in the womb and sometimes enlarge to the size of a hen egg or larger). Be careful in getting the after birth from these, for if you tear one, you may have hemorrhage. Diagnosis: You will know this by the staring look, by the fast breathing, by loss of appetite. After you have removed the after birth, wash out the parts well with warm water, one gallon, Carbolic acid, 1 dr. Repeat this every day for a week or more if you think the case requires it. Use Prescription No. 89—Sulphate magnesia, oz. 20. Aqua. warm O. II. Mix and give at once, and after six hours follow up with No. 87.





Prescriptions



No. 1. Flatulent or Wind Colic—Salsoda 1-2 oz. Tr. peppermint 2 dr. Warm water 3 oz. Mix, give at one dose, and repeat every 25 minutes until relieved.

No. 2. Spasmodic Colic—Chloroform 2 dr. Sul. Ether 1-2 oz. Tr. Opii 1-2 oz, F. E. Canibus Indica Gtt. 30. Mix, give every 25 minutes until relieved.

No. 3. Inflammation of the Kidneys—Tr. Opii 1-2 oz. Sweet spts. nitre 1-2 oz. Oil of cubebs 1 dr. Warm water oz 6. Mix, give at one doss every 60 minutes until relieved.

No. 4. Thumps in Horses—Whiskey Rye oz. 8. Tr. Digatilis dr. 2. Mix, give one-half oz. in half pint sweetened water every three or four hours until relieved.

No. 5. Liniments for Puffs—Oil of origanum. Oil of cedar. Oil of sassafras, a. a. oz. 2. Alcohol oz. 8. Bathe parts well and use the bandage as taught you in the lesson.

No. 6. Blind Staggers—Quinine Sulphate oz. 1 Spts. Vini. Rectiff. oz. 10. Mix, give one oz, in half pint of water every three hours. Then give a good purgative, say one quart of raw linseed oil 5 dr. aloes powd. Mix and drench all at one dose.

No. 7. Lockjaw in Horses—F. E. Gelsemium, F. E. Lobelia, of each oz. 2. Mix, give one oz. every three hours as drench or per rectum. Give hypodermically morphine every three or four hours in 3gr. doses. Keep bowels well open.

No. 8. Blister—Red Iodide Meroz 1-2. Pwd canthdr 2. Adeps enough to make a soft paste. Shave off hair and then rub on medicine and use bandage as taught you.

No. 9. Blain in Cattle—Sulphate of magnesia oz. 20. Warm water one qt. Dissolve and give at one dose as drench. Repeat in six hours if bowels not open well.

No. 10. Blain in Cattle, Fever—F. E. Aconite gtt. 20. Tr. Belladonna Gtt. 10. Mix, give every 30 minutes until fever abates.

No 11 Blain—Give this purgative when other will not do, but don't give this if the other will act. Oleum Tig-lii gtt. 15, Calomel gr. 30, Sulphate magnesia oz. 15. Mix with oil, linseed or sweet, and give at one dose.

No. 12. Constipation in Cattle—Oil Linseed (raw) oz 12, Gentian Ginger a a dr 2. Mix, give at one dose and repeat in 12 hours, and continue until bowels are regulated.

No 13 Diarrhoea in Calves—Tr Opii dr 2, Boiled sweet milk half pint. Mix, give every three hours until bowels are checked.

No 14 Diarrhoea in Calves—Give tablespoonful of prepared chalk every few hours until purging ceases.

No 15 Costiveness in Cattle—Glauber Salts oz 1-2, Corn meal one pint made into a gruel by pouring on boiling water. Mix, and stir, give as drench. Now, this is for grown cattle, give smaller doses if not grown.

No 16 Hoose in Calves—My blood purifier, teaspoonful, Turpentine gtt 20, Tr aconite gtt 10, Mix, give every few hours and follow with injection of warm water and castile soap.

No 17 Flux or Slimy Black Rot in Cattle—Oil linseed oz. 10. Give three times daily, and also give Tr Opii oz SS three times daily.

No 18 Splenic Fever in Cattle—F E Aconite dr 1, Gentian Rad F E oz 1, Ammon chl oz 1, Potas nit oz SS. Mix. give one oz every hour until fever abates.

No 19 Heaves in Horses—Arsenicum alba dr 2, Pwd stramonium dr 2. Mix, divide into 24 pwd, give one per day in mashed feed.

No 20 Screw Worm Killer—Chloroform oz 2, Acid Carbolie oz 1, Oil picis, liq oz 1-SS. Mix and apply to worms.

No 21 Liniment for Curb—Oil Organum, Oil Spike, Oil Amber, Oil Turpentine, Oil Camphor a a oz 1, Alcohol q s oz 10. Mix. Bathe parts well two or three times per day.

No 22 Pneumonia—Nitrate Potash oz 5, Soda bicarbonate oz 1. Mix, divide into 12 pwd, give one every 4 hours; at same time give No 23.

No 23 Pneumonia—Carbonate ammonia oz 1, Pulverized chincona bark, oz 2 1-2. Pulv nux vomica oz 1-2, Pulv digitalis leaves dr 3, Pulv gentian oz 2. Mix and make into 8 balls, give one every 6 or 8 hours.

No 24 Healing Powders for Fresh Wounds—Burnt alum oz 2, Prepared chalk oz 2, Calomel dr 2. Mix and sprinkle on parts three or four times per day.

No 25 Scratches, Etc—Oxide zinc dr 4, Carbolic acid dr 2. Adepts to make a soft paste, and apply to parts two or three times per day.

No 26 Swollen Tendons or Legs—Salt peter oz 4, Sugar lead oz 2, muriate ammonia oz 1, Chloride sodium pt 1. Mix, shake well before using and rub parts three or four times per day.

No 27 Ring Worm—Flower of sulphur oz 1, Iodide potassium oz SS, Iodine dr. 3, Oil of tar oz 5. Mix and apply to parts two or three times per day.

No 28 Mange—Oil olive oz 4, Oil tar oz 5, Flour sulphur oz 2. Mix and rub affected parts well. Leave on 25 hours, after which wash off and apply again, and so continue until well.

No 29 Lice on Cattle—Plug of tobacco, Greenville is best, llb 1, Water 3 gallons. Boil one-half hour and wash parts well. Repeat in 48 hours if necessary.

No 30 Snow Liniment—Aq ammonia oz 1, Olive oil oz 2. Mix. This is good liniment for any local bruise.

No 31 Cough Balls—Digitalis oz SS, Camphor, Tartar emetic, linseed meal a a oz 1, Nitrate potash dr 3. Mix, make three pills, and give one per day until cough ceases.

No 32 Soap Liniment—Hard soap, Camphor, Oil rose-merry a a oz 1, Rect spirits pt 1. Mix the soap with the spirits, then add the other, and rub parts affected.

No 33 Alterative—Powd aloes oz 1 1-2, Castile soap 1 1-2oz, Pwd carraway seed oz 1 1-2, Powd ginger dr 4. Use palm oil to make mass, divide into six balls and give one per day.

No 34 Condition Balls—Powd ginger, Powd gentian a a oz 1, Sulphate iron oz 2. Mix, make in four pills and give one per day.

No 35 Purgative for Cattle—Epsom salts one and one-half lbs, Gentian, Ginger a a oz 2, Calomel dr 1, Croton oil gtt 20, Warm water qt 1. Mix, give at one dose. This is for a bad case where a mild puagative will not do.

No 36 Inflammation of the Bowels—Digitalis gtt 15 Tr. Opii oz SS, F E aconite gtt 20, Water oz 6. Mix, give at one dose every 60 minutes until relieved:

No 37 My blood purifier, Black antimony, Foenu-greek aa oz 1, Gentian, Mustard a a oz 2, Sassafras bark oz 1, Sulphur oz 4, White arsenic dr 1, Nux vomica dr 2, Mix, give tablespoonful twice per day in feed.

No 38 Wart Extractor—Sulphuric acid. Nitric acid, Sulphate zinct a a oz SS. Mix. Cut off wart smooth with surface and apply once per day for eight days.

39 Heaves, How to Patch Up—Oil picis liq oz 2, F E Lobelia oz 1. Mix, give at one dose and repeat every morning for three mornings. Give no dry food.

No 40 How to Fatten Your Horses in a Very Short Time—Nitric acid dr 3, Soda bicarbonate oz 2, Assa-feotida dr 3. Mix, give one tablespoonful twice per day in meal.

No 41 Hog Cholera—Unslacked lime oz 6, Assafeotida oz 1, English Calomel oz 1. Dissolve in quart water and give tablespoonful once per day.

No 42 Eye Lotion Where There is Inflammation—Silver nitrate, gr 10, Sulphate zinct gr 3, Water oz 4. Mix and apply to eye three or four times a day.

No 43 Proud Flesh—Sulphate zinct dr 3, Sugar lead oz 1, Burnt alum oz 2. Mix, and sprinkle on parts three or four times a day.

No 44 Swollen Sheath and Penis—Sugar lead oz 1, Sulphate zinct dr 3, Water one qt. Mix, and bathe parts freely three or four times per day.

No 45 Fever Mixture—Traconite dr 1, F E Belladonna dr 2, Aq oz 4. Mix, give teaspoonful every hour on tongue.

No 46 Poison Horses or Cows—Hydrated chloral oz 1, Tr opii oz SS. Mix, give at one dose every two hours until symptoms subside.

No 47 Thumps in Horses—Whiskey oz 2, Sweet spts nitre oz SS, Nitrate pot dr 1. Mix, give at one dose, and repeat in eight hours if necessary.

No 48 Purgative for Horses—Nux vom dr 1, Gentian Ginger aa dr 2, Aloes powd dr 7. Mix. Sig Bolus give at one dose, but don't repeat under 48 hours.

No 49 Eye Water—This is for sore eyes where they are mattering. Zinct sulphate gr 5, Nitrate silver gr 10, Atrophine Sulp gr 2 1-2, Aq dis oz 5. Mix and put a few drops in eye every four or five hours.

No 50 Nasal Gleet—Carbolic acid, oz 1, Oil tar oz 4, Alcohol oz 6, Turpentine oz 2, Aq oz 6. Mix. First wash out nostrils with soap and warm water, then use one tablespoonful as spray after washing.

No 51 Hoof Liniment—Oil tar oz 4, Oil origanum oz 1, Oil linseed oz 6, Alcohol oz 7. Mix and apply to foot once or twice per day.

No 52 Collar or Saddle Sores—Pulv alum oz SS, Sulphur oz SS, Calomel gr 30, Mix, and grease the parts before using with vasaline: then sprinkle on part 4 or five times a day.

No 53 Fistula Liniment—This is for fistula before it has bursted and running. Turpentine oil, Coal oil a a oz 2, Hartshorn, oz 1, Oil sassafrass oz 1 1-2, Mix, and bathe parts once per day for three days, then iron with hot iron each day.

No 54 Lung Fever (Blister)—If the pulse is beating at 70 per minute, you may blister opposite the lungs with this blister. Canthradise dr 4, Adeps oz 4, Resin oz SS. Mix and apply to parts every three hours until well blistered.

No 55 Gravel in Stem of Bladder—Take prickly pear pads that bloom on the prairie. Gather one gallon of pads, put in three gallons of water and boil until you have one gallon, then strain through cloth and give one pint of this medicine per day as drench until symptoms are no more.

No 56 Wormy Horses—Calomel gr 30, Coperas dr 3, Pulv sage oz 1, Pwd arsenic dr 1. Mix and divide into 12 pwd. Give one three times a day in feed.

No 57 Old Sores—Lanar costic dr 1, Water oz 2. Mix, and apply to sore two or three times per day with soft rag or cotton.

No 58 Sore mouth—Borax oz 1, Honey oz 2, Water oz 4. Mix, and apply three or four times per day if you think case requires it.

No 59 Favorite Liniment—This is one of the best liniments on the market and is called Dr. Rutherford's Favorite Liniment. This is the same formula that is used at the laboratory in putting this up for the trade: Oil of cedar oz 2, Sul ether oz SS, Oil sassafras oz 4, Aq amonia oz SS, Gum camph dr 3, Spts Vini rectif q s O I. Mix and apply three or four times per day if necessary.

P S This liniment is also good for man; burns, cuts

or any kind of hurt.

No 60 Liniments for Strained or Stiff Joints Where it is Bad—Oil of Spike, Oil of Organum a a oz 2, Aq ammonia oz 1, Alcohol q s oz 8. Mix and bathe affected parts well three or four times a day until you get up a good blister, then grease with hog lard.

No 61 Blood Stopper—Monsells solution of iron oz 2. Sig. Saturate a piece of cotton, say as large as a quail egg, press to the bleeding parts, and the blood will stop immediately.

No 62 For Colic in Cows—Tr opii oz 1 1-2, Ext ginger dr 6, F E Canibis indic oz SS, Aq warm oz 20. Mix, divide into two doses, give half as drench and repeat in 30 minutes if not relieved of the pain.

No 63 Tonic for Cattle—Pw d gentian oz 1, Pw d ginger oz 1, Sulphate quinine oz SS, Pw d iron oz 2. Mix, divide into 12 p w d, and give one three times per day.

No 64. Worms—Aloes barb dr 4, Ferri Sulph pure dr 4, Calomel dr 2, Antimony Tart dr 4. Mix, divide into three doses and give one per day.

No 65 Diarrhea—Protan dr 6, Pw d ginger oz 1. Mix, make into three pills and give one every three hours.

No 66 Catarrh—Sodium chloride, Sodium Sulphate a a oz 4, Sodium bicarbonate oz 2, Licorice root oz 3. Mix, give one tablespoonful three times a day.

No 67 Dispepsia—Sodium chloride oz 5, Reduced iron dr 2. Calamus root p w d oz 1, Bicarbonate soda oz 2. Mix, give tablespoonful three times a day.

No 68 Gall (Saddle)—Salicylic acid, oz SS, Resorsin dr 2. Lactic acid dr 2, Colodium flex oz 1 SS. Mix, wash off parts well and apply enough of the medicire to form a thick coat, let remain three days, then wash off and use the following (No 69):

No 69 Gall (Saddle)—Iodiform, Sub nit bis, Calomel a a dr 1, Alum burnt oz SS, Ac boricum oz 1. Mix, sprinkle on parts three or four times per day.

P S You may have to repeat the first as many as

three times, but where not bad case, one application will do the work.

No 70 Jaundice in Cattle—Aloes oz 2 SS, Rhubarb oz 2 SS, Argols (crude tartar) oz 5, Calamus oz 5, Sodium Sulphate oz 5. Mix, give one tablespoonful three times a day. You can tell this disease by the mucus of the mouth and the white of the eye turning yellow, also the urine becomes dark and the dung light.

No 71 Lice on Cattle—Yellow bar soap oz 20, Alcohol (wood) oz 2, Crude naphtholine, oz 2, Aqua oz 80. Mix, heat over a gentle fire and then stir until cold. Rub the parts thoroughly and repeat in two days if you think necessary.

No 72 Udder (Inflammation)—Salicylic acid gr 50. Mercurial ointment oz 1, Liniment camph oz 3. Mix, apply to udder and rub freely four or five times per day.

No 73 Urine (Bloody)—Sodium acetate, Powd camph dr 3 of each, White lead dr 1. Mix, divide into 12 pwd, give one three times a day in feed, or as drench in pint of water.

No 74 Worms (In Cattle)—Powd wormwood, Powd Tansy, Powd aloes a a oz 1, Dippel's oil oz 4, Linseed oil oz 16. Mix, give half as drench and wait six hours and give remainder.

No 75 Worm (Hog)—Sodium sulphate pwd oz 2, Tansy pwd dr 5, Castor oil dr 7, Naphtholine dr SS. Mix with molasses and give tablespoonful every two hours.

No 76 Cough (in dogs)—Sodium bromide dr 2, Cresote water oz 2, Fennel water oz 4. Mix, and give half tablespoonful four times daily.

No 77 Cough (in dogs)—Tr belladonna oz SS, Syrup squills oz SS, Paregoric oz 1, Aq q s oz 6. Give one teaspoonful three times a day.

No 78 Distemper in Dogs—Tr aconite root dr SS, Sweet spts nitre oz SS, Tr gentian oz SS, Syrup tulu

oz 2, Aq q s oz 4. Give a tablespoonful every two hrs and feed on beef tea. sweet milk and raw eggs.

No 79 Distemper (in dogs)—Elixir bromide potassium oz 6, Tr gelsemium dr 3. Mix, and give teaspoonful every two hours.

No 80 Constipation in Dogs—Give tablespoonful of castor oil, repeating this in 8 or 10 hours, also give injections of soap and warm water freely. If this will not do, try No 81.

No 81 Constipation in Dogs—Jalap dr 1, Ginger, Gentian a a dr 1, Syrup q s dr 1. Give as one dose.

No 82 Mange in Dogs—Mange is so well known, I will only give you the Prescription for it. Oil cadium oz 1, Flour of sulphur oz 2, Adeps oz 4. Mix, wash dog well, dry thoroughly and rub on medicine.

No 83 Pneumonia in Hogs—How to know it: By the fast breathing and shivering. There will be more or less cough, and the hog will loose appetite. Put the animal in a comfortable stall, put a mustard plaster on the chest and give the following: Soda bisulphate dr 3, Nitrate potash dr 3. Make one pint of meal gruel and stir this in when cold. Give the hog half of this if he will eat it; if not, drench him by placing a board in his mouth with a hole through it so he can't crush bottle or bite operator. The best position in which to have the hog while drenching is sitting on his hind parts with his feet before him. No danger in drenching this way. Give all the sweet milk he will drink.

No 84 Quinsy in Hogs—You know this by the swelling under the throat. It is a common and very often fatal disease if not treated immediately, and with the proper treatment. If you find the hog has difficulty in swallowing, and there is a swelling under the neck, you may know there is Quinsy. First, secure the hog good, and puncture the parts well, as I have spoken of in another part of this book, and apply very hot cloths to the parts, keeping this up for several minutes at a time, and repeating often. After using this treatment

several times, rub on my Favorite Liniment 4 or 5 times a day, then give Prescription per rectum. Sulphate magnesia oz 4, Olive oil oz 4, Soapsuds 1 pt or 1-2 pt. Mix and inject.

No 85 Congestion of the Brain in Hogs—The hog becomes dull and stupid, the bowels constipated, begins to walk in a circle, the limbs become stiff, he will froth at the mouth, the breathing is hard. This is most common in well-fed hogs. Hogs that are thin in flesh are rarely affected with this disease. Give him the following per mouth if convenient; if not, per rectum will do. Quinine sulph gr 30, Spts Vini rectif oz 5. Mix, give one oz in 1-2 pt sweet milk every two hours, give purgative.

No 86 Diarrhoea In Hogs—Pw'd foenugreek seed oz 2, Powd chalk oz 2, Powd Gentian oz 1, Soda bicarbonate oz 1. Mix, give tablespoenful to each hog three times a day. Give to pigs according to size and age.

No 87 Lice on Hogs—Wash hog well with soap and water, and take creoline oz 2, Warm water one gal, wash and not dry. This will kill them every time, but you may have to repeat where there is nits to hatch, which were on the ends of the hairs that the creoline did not reach.

No 88 Mange in Hogs—Flower of sulphur oz 2, oxide zinct, oz 1, Adeps oz 10. Mix, wash hog good, and after drying, smear ointment all over him good, letting it remain two days. You may have to repeat in bad case, but hardly ever. Give internally sulphur dr 2. Nitrate pot gr 15. Mix, give once per day for ten days. Apply mustard plasters as taught you and give oils and soft feed. Give no dry feed at all. Then give this: Ferri Sulph Ex oz 2, Gentian Rad oz 3, Quin Sulph oz 1-2. Mix Ft Chart No 12. Sig. Give one pw'd three times day, noon, morning and night.

No 89 Inflammation of the Brain—Calomel dr 1, Oleum Tigllii Gtt 20, Oil linseed, pt 1. Mix, give at one dose. After six hours give No 88 as directed.

No 90 Septicemia In Cattle—Sulphate of magnesia oz 20, Aqua oz 24. Mix and give at one dose. Wait six hours, then give No 88.

No 91 For Strained Shoulders in Cattle—Aq amonia oz 3, Oil Terebenth oz 3, Spts camph oz 4, Oil origanum oz 3. Mix and rub parts well two or three times a day until you get a good blister.

No 92 For Lice on Cattle—Strong bar soap oz 12, Greenville plug tobacco oz 6, Naphtholine crude oz 3, Water one gal. Boil down to one-half gallon and wash. This will kill them every time.

No 93 Fly and Mosquito Oil—Ac Carbolic oz 3, Oil Pennyroyal oz 8, Oil Picis liq oz 12, Cottonseed oil oz. 16. Mix, shake well and apply to mane and tail and around on the walls, if in the stable.

No 94 Sores About the Feet of Cattle—Wash off good with warm water and castile soap. Rinse the parts well and dry and apply the following: Sugar lead oz 1, Zinc sulphatis dr 2, Muriate ammonia oz SS, Aqua O I. Mix. Sig. Wash parts two or three times a day.

No 95 Mange on Dogs—Oil turpentine oz 2, Oil cadium oz 2, Benzine oz 3, Olive oil q s ad pt 1. Mix, and bathe dog well, after washing with soap and water. Let stay on 48 hours, then wash off.

No 96 Old Sores and Proud Flesh—Burnt alum oz 1, Sub nit bis dr 2, Calomel dr 1, Acid boric oz 2. Mix and sprinkle on parts once per day after washing good.

No 97 Saddle or Harness Hurts on the Back—Oil origanum oz 2, Oil cedar oz 3, Spts Vini rectif oz 5. Mix and bathe parts two or three times a day for five days, then grease parts well with olive oil to keep the hair from falling out. Now, this is for the back when first bruised. If there is a sitfast, nothing but a knife will remove it.

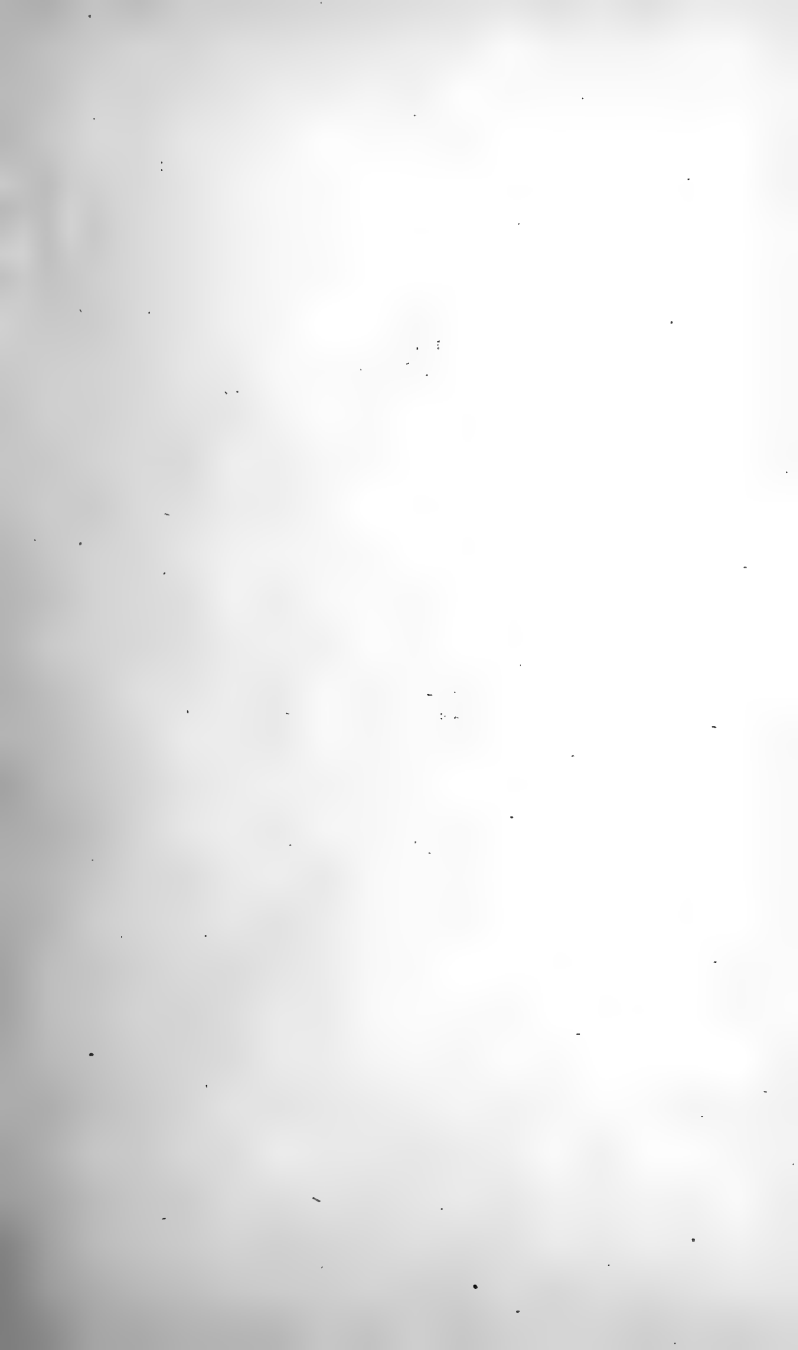
No 98 Fever Mixture Where Fever is High for Horse or Cow—Gentian Rad F E oz 1, F E Belladonna dr 2, F

E aconite dr 1, Potas nit oz SS. Mix, give two oz every two hours until fever goes down.

No 99 Another Good One for Fever—Quinine sulph dr 6, Acatanlid oz 2, Spts ether nit oz 2, Alcohol oz 10. Mix, and give one and one-half oz every two or three hours in half pt aqua.

No 100 Sore Teats in Cattle—Acid Tanic dr 4, Acid Carbol dr 1, Oil olive oz 6. Mix and grease teats good after milking.

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